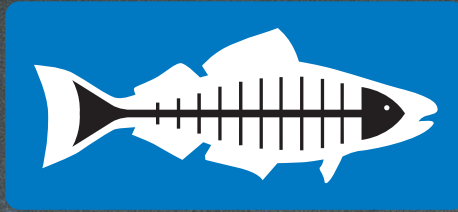


Heal the Bay

BEACH REPORT CARD

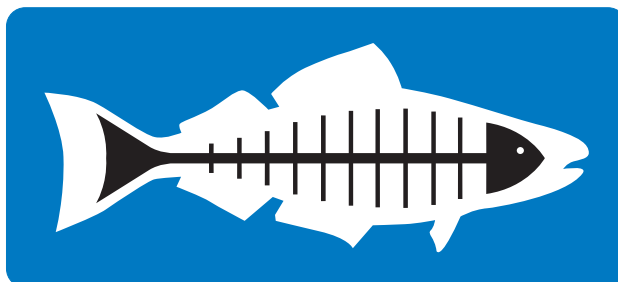


2005 - 2006

16th Annual Report



BEACH REPORT CARD



Heal the Bay's
16th Annual Beach Report Card
May 24, 2006

Heal the Bay is a nonprofit environmental organization dedicated to making Southern California coastal waters and watersheds, including Santa Monica Bay, safe, healthy and clean. We use research, education, community action and advocacy to pursue our mission.



The Beach Report Card program is funded by a grant from the Ford Motor Company



Heal the Bay's 16th Annual Beach Report Card May 24, 2006

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Executive Summary

Heal the Bay's 16th Annual Beach Report CardSM provides essential water quality information to the millions of people who swim, surf, or dive in California coastal waters. Essential reading for ocean users, the report card grades over 350 locations year-round (486 locations in dry weather from April to October) on an A-F scale based on the risk of adverse health effects to beachgoers. The grades are based on daily and weekly fecal bacteria pollution levels in the surfzone. The program has evolved from an annual review of beaches in Santa Monica Bay to weekly updates of all monitored beaches throughout California. All this information is available in print and at www.healthebay.org.

The 2005-2006 Annual Beach Report Card shows that most beaches had very good water quality, with 301 of 356 (85%) locations receiving very good-to-excellent (A and B) grades for the year during dry weather. There were also 17 (5%) Cs, 9 (3%) Ds and 29 (8%) Fs. Southern California's (Santa Barbara through San Diego) grades were slightly lower than the statewide average (83% As and Bs). LA County had, by far, the state's lowest grades with only 68% As and Bs.

One of the reasons that Los Angeles County had the worst water quality grades in California was that the county was one of the first in the state to modify their monitoring program to collect samples directly in front of flowing storm drains and creeks. This change was a result of the Santa Monica Bay beach bacteria Total Maximum Daily Load requirements. Children play directly in front of stormdrains and some kids even play in the runoff filled ponds and lagoons. Monitoring at "point zero" is the most protective way to ensure the health risks to swimmers are minimized.

In addition to moving numerous beach monitoring sites to point zero, 14 new sites in the Santa Monica Bay were added to the monitoring program under the beach bacteria Total Maximum Daily Load (TMDL) requirements. Unfortunately, the Los Angeles County Health Department failed to act on over a year's worth of this new beach monitoring data, failing to notify the public of beach pollution at any of the 14 new beaches. The health department never informed beach cities of the extent of their water quality problems, never posted the beaches, and never released media advisories warning the public of potential health risks. The health department also didn't investigate the cause of these high bacteria counts. The Los Angeles County Health Department is charged with protecting the public health of all beachgoers in the county, and has failed to adequately protect the health of millions of swimmers.

As in past years, there continues to be a great disparity between dry and wet weather water quality. Our last annual report reflected the most polluted wet weather season on record since the statewide beach monitoring program began in 1999. This was a result of the enormous amount of rain throughout the state during 2004-2005. This year's (April 2005 – March 2006) data continues

to show the stark difference between dry and wet weather quality, but wet weather grades are not nearly as dismal as the previous year's report card. This year, 46% of the 356 locations monitored during wet weather received fair-to-poor (C – F) grades. Southern California wet weather grades were slightly worse than the state average with 50% fair-to-poor grades.

Numerous California beaches vied for the “Beach Bummer” crown this year (the monitoring location with the poorest dry weather water quality). The five most polluted beaches in the state were all in LA County. The 10 worst were: Cabrillo Beach harborside at the lifeguard tower in Los Angeles County (10th), Topanga State Beach in Los Angeles County (9th), the Tijuana Rivermouth in San Diego County (8th), Doheny Beach in Orange County (7th), Pillar Point Harbor at Capistrano Avenue Beach in San Mateo County (6th), the Santa Monica Municipal Pier (5th), Surfrider Beach in Malibu (4th), Avalon Beach on Catalina Island (3rd), and Will Rogers State Beach at Chautauqua Blvd in Los Angeles County (2nd). Multiple locations in the north Santa Monica Bay share the dubious honor of being California's worst “Beach Bummer” this year. As part of the Santa Monica Bay Beaches Bacteria TMDL, data was collected for the first time this past year from the wave wash directly at the outlet of 14 different storm drains or creeks. Four of these new sites exhibited horrendous water quality, with one of the sites, Escondido Creek just east of Escondido State Beach, having the worst grades in the state for both the AB411 and year-round dry weather time periods (95% of samples exceeded state bacterial standards). The other three most problematic new north Santa Monica Bay monitoring locations were: Castlerock Storm Drain at Castle Rock Beach, Marie Canyon storm drain at Puerco Beach, and the Santa Ynez Storm Drain at Castle Rock Beach.

Every beach from Ventura County line south to Palos Verdes must meet state beach bacteria health standards 100% of the time by July 15th, 2006. It is clear that numerous beaches along Santa Monica Bay will not comply with the beach bacteria TMDL requirements for dry weather. The 100% compliance requirement is for the AB411 time period from April 1st to October 31st. That means that all beaches must be safe for swimming every day for the seven months from April to October. Many of the most polluted beaches in California are located along Santa Monica Bay. Clearly, more needs to be done to protect the health of the more than 50 million visitors to Santa Monica Bay beaches. Heal the Bay urges the Regional Water Quality Control Board to ensure compliance with the TMDL requirements as soon as possible after the July 15th deadline.

Heal the Bay completed an analysis of data from Santa Barbara County through San Diego County to determine if there were significant differences in water quality based on beach type. From our analysis, water quality at open ocean beaches during year-round dry weather was significantly better than water quality at those beaches impacted by storm drains or located within enclosed bays or harbors. 91% of open ocean beaches received an A grade for year-round dry weather compared to 71% at beaches impacted by a storm drain, and 79% at beaches found with-

in an enclosed bay, harbor or marina. The percentages during the summer dry weather time period (AB411), when most beachgoers were in the water, showed 89% of open ocean beaches with A grades, compared to 77% of beaches impacted by a storm drain, and 78% of beaches found within an enclosed bay, harbor or marina.

Heal the Bay has implemented a new grading methodology for the Annual Beach Report Card (BRC) this year. For the fourth time in the 16 year history of the program, Heal the Bay has modified the Beach Report Card grading methodology to better characterize local beach water quality. Amendments to the grading methodology include: the inclusion of the geometric mean into the calculation, a firm zero to 100 point scale, and greater weight for enterococcus and the total-to-fecal ratio relative to total coliform and fecal coliform. These modifications stem from comments made by California's State Water Resources Control Board and the Beach Water Quality Workgroup. With these improvements to the methodology, Heal the Bay's Beach Report Card grading system is now endorsed by the State Water Resources Control Board and the Beach Water Quality Workgroup as an effective way to communicate beach water quality to the public.

The Beach Report Card is based on the routine monitoring of beaches conducted by local health agencies and dischargers. Water samples are analyzed for bacteria that indicate pollution from numerous sources, including fecal waste. The better the grade a beach receives, the lower the risk of illness to ocean users. The report is not designed to measure the amount of trash or toxins found at beaches. The Beach Report Card would not be possible without the cooperation of all of the shoreline monitoring agencies in the state.

Heal the Bay believes the public has the right to know the water quality at their favorite beaches as soon as possible, and is proud to provide Californians this information in an easy-to-understand format. We hope that beachgoers will use this information to make the decisions necessary to protect their health.

County health officials and Heal the Bay recommend that beach users never swim within 100 yards of any flowing storm drain, or in any coastal water during a rainstorm, and for at least three days after a storm has ended. Storm drain runoff is the greatest source of pollution to local beaches, flowing untreated to the coast and often contaminated with motor oil, animal waste, pesticides, yard waste and trash. After a rain event, indicator bacteria densities usually far exceed state health criteria for recreational water use.

For more information, please visit www.healththebay.org, or call 1-800-HEAL BAY

Introduction

Heal the Bay's first Beach Report CardSM (BRC) was published in 1990 and covered about 60 monitoring locations in Los Angeles County from Leo Carrillo Beach near the Ventura County line south to Cabrillo Beach in San Pedro. At the time, beachgoers knew little about the health risks of swimming in polluted waters or the water quality at any of their favorite beaches in Los Angeles County. Beach water quality was a public issue only when a substantial sewage spill occurred. Although beaches were routinely monitored, the data was either inaccessible or unusable to the public. Since then, much work has been done to address the issue of urban runoff and sewage spills at our local beaches. Scientific studies such as the Santa Monica Bay Restoration Project's Epidemiological Study on swimmers at runoff polluted beaches and the Southern California Coastal Water Research Project's bight-wide shoreline bacteria and laboratory inter-calibration study have been completed. Legislation, such as the statewide beach bathing water standards and public notification bill (AB411), and the protocol for identifying sources of fecal indicator bacteria at high-use beaches that are impacted by flowing storm drains (AB538) have been signed into law. Structural best management practices, such as the Santa Monica Urban Runoff Recycling Facility, dry weather diversions, and Clean Beach Initiative projects have been constructed. In this same time period, Heal the Bay's Beach Report Card has grown in coverage, expanding from Los Angeles County to all of California (where monitoring programs exist).

The 16th Annual Beach Report Card summarizes the results of beach water quality monitoring programs along California's coast, from Humboldt County to San Diego County, over the last 12 months (April 2005 through March 2006). The summary includes an analysis of water quality during three time periods: summer dry weather conditions, year-round dry weather conditions, and wet weather conditions. In addition to summarizing local water quality, the report includes a brief review of the number of sewage spills that impacted recreational waters over the past year. The information derived from this analysis is used to develop recommendations for solving water quality impairments at problem beaches.

Heal the Bay advises California beachgoers to use the information before they go to any beach in the state, in order to better protect their health and the health of their families. The Report Card should be used like the SPF ratings in sunblock – beachgoers should determine what they are comfortable with in terms of relative risk, and then make the necessary decisions to protect their health. The weekly California BRC is available in print and at Heal the Bay's website, www.healthebay.org.

The California Beach Report Card

What Type of Water Quality Pollution is Measured?

Runoff from creeks, rivers or storm drains is the largest source of pollution to California beaches. Runoff may contain toxic heavy metals, pesticides, petroleum hydrocarbons, animal waste, trash and even human sewage. The Beach Report Card includes an analysis of shoreline (ankle-deep) water quality data collected by various county and city public agencies for fecal indicator bacteria. At present, the report card contains no information on toxins or trash in the water.

This year, there are 486 shoreline monitoring locations analyzed in the California Beach Report Card from Humboldt County at Trinidad State Beach near Mill Creek to San Diego County at the Border Field State Park (border fence). Shoreline water samples are analyzed for three indicator bacteria: total coliform, fecal coliform (or *E.coli*) and enterococcus. Total coliform, which contains coliform of all types, originates from many sources, including soil, plants, animals and humans. Fecal coliform and enterococcus bacteria are found in the fecal matter of mammals and birds. This fecal matter does not necessarily come from humans, although numerous prior studies have demonstrated that there is a significant possibility of human sewage contamination in storm drain runoff at any given time.

The amount of indicator bacteria present in runoff, and consequently in the surfzone, is currently the best indication of whether or not a beach is safe for recreational contact. Indicator bacteria are not usually the microorganisms that cause bather illness. Instead, their presence indicates the potential for water contamination with other pathogenic microorganisms such as bacteria, viruses and protozoa that do pose a health risk to humans. The link between swimming in waters containing elevated levels of bacteria indicators and health risk was confirmed in the groundbreaking 1996 Epidemiological Study conducted by USC, the Sanitation District of Orange County, the City of Los Angeles, and Heal the Bay, under the auspices of the Santa Monica Bay Restoration Project.

Most sample locations are selected by monitoring, health, and regulatory agencies to specifically target popular beaches and/or those beaches frequently affected by runoff. Water quality samples were collected by the appropriate agency at a minimum of once a week from April through October, as required under the California Beach Bathing Water Quality Standards (AB411) or the Environmental Protection Agency's National Beach Guidance and Performance Criteria for Recreational Waters (EPA's BEACH program). Some agencies conducted year-round sampling, while others scale back their monitoring programs from November through March. All counties that have beach monitoring programs and provide the data to the public were included in the Beach Report Card.

Water Quality Thresholds

Densities of total coliform, fecal coliform and enterococcus bacteria are typically measured in colony-forming units (cfu) per 100 milliliters of ocean water. Colony-forming units are the number of bacteria that are capable of reproduction during the course of sample analysis. The Beach Report Card methodology utilizes four thresholds, or specific levels of exposure, that are associated with increased health risks. These thresholds were derived from California Department of Health Services standards set forth in AB411, the California Ocean Plan, and findings from the 1996 SMBRP Epidemiological Study on swimmers at urban runoff polluted beaches. The four exceedance thresholds for various indicator bacteria can be found in Appendix A.

Heal the Bay's Grading System

Heal the Bay's grading system takes into consideration the magnitude and frequency of exceedances above indicator thresholds over the course of a year. Monitoring locations that exceed multiple indicator thresholds in a given day received lower grades than those that exceeded just one indicator threshold.

The grades are based on a 100-point scale. For each monitoring location, points are subtracted from a perfect score of 100 depending on the severity of bacterial count exceedances of state single sample standards, and/or exceedances of the 30-day geometric mean standards. As the magnitude or frequency of bacteria density threshold exceedances increases, the number of points subtracted increases. The threshold points and grading system can be found in Appendix A.

Water quality drops dramatically during and immediately after a rainstorm, but often rebounds to its previous level within a few days. For this reason, wet weather data was analyzed separately in order to avoid artificially lowering a location's grade. Wet weather data is comprised of samples collected during or within three days following the cessation of a rainstorm. Heal the Bay's annual report card and weekly report cards utilize a definition of a 'significant rainstorm' as precipitation greater than or equal to one tenth of an inch (≥ 0.1 "). The BRC analyzes dry weather water quality data for two time periods, April 2005 through October 2005 (summer dry weather), and April 2005 to March 2006 (year-round dry weather).

What Does This Mean to the Beach User?

Simply put, the higher the grade a beach receives, the better the water quality at that beach. The lower the grade, the greater the health risk. Potential illnesses include stomach flu, ear infection, upper respiratory infection and major skin rash (full body). The known risks of contracting illnesses associated with each threshold are based on a one-time, single day of exposure (head immersed while swimming) to polluted water. Increasing frequency of exposure or the magnitude of bacteria densities may significantly increase an ocean user's risk of contracting any one of a number of these illnesses.

It is important to note that the grades derived for the California Beach Report Card represent the most current information available to the public, but they do not represent real-time water quality conditions. Currently, laboratory analyses of beach water quality samples take 18 to 48 hours to complete, then the data must be entered into a database before it is sent to Heal the Bay for a grade calculation. However, www.healthebay.org provides real-time information on beach closures due to sewage spills that most health agencies report immediately after a spill. The report card is designed to give the beachgoer historical information on the water quality at a given beach. The public can then make informed decisions about which beach to visit safely.

Why Not Test for Viruses?

A common question asked by beachgoers is “since viruses are thought to cause many of the swimming associated illnesses, why doesn't the health agency monitor directly for viruses rather than bacteria indicators?” Although virus monitoring is incredibly useful in identifying sources of fecal pollution, there are a number of drawbacks to the currently available virus measurement methods. There have been tremendous breakthroughs in the use of gene probes to analyze water samples for virus or human specific bacteria, but currently these techniques are expensive, highly technical and not very quantitative. Most importantly, there has not been an epidemiology study using quantifiable methods of human virus detection. There are two virus monitoring techniques for analyzing water samples: genetic and cultured. The genetic technique for detecting viruses can be completed in less than a day and is very sensitive to detecting a wide variety of viral pathogens. However, the tests can be extremely expensive and the results often do not accurately quantify the number of viruses per unit volume or provide information on whether or not the virus is infectious. The culture technique for detecting viruses is less costly and can confirm whether or not a virus is infectious. Unfortunately, this technique is less sensitive in detecting viruses, is susceptible to water-quality-caused interference, and is much slower in providing results (up to 6 weeks). Finally, interpretation of virus monitoring data is difficult because, unlike bacteria indicators, there is currently no data available that links health risks associated with swimming in beach water to virus concentrations. Therefore, indicator bacteria monitoring is currently the best, most timely and cost effective method for protecting the health of beachgoers.

2005-2006 California Analyses

California Beaches

Summer dry weather water quality at California beaches this past year was good, but saw a marked decline from the year before. Of the 486 ocean water quality monitoring locations throughout California, 425 (87%) received very good-to-excellent water quality marks (A or B) for April through October 2005 (AB411 time period) [Figure 1 and 2]. There were 61 (13%) monitoring locations that received fair-to-poor water quality marks (C – F) during the same time period. The percentage of A or B grades for year-round dry weather was only slightly lower than those for summer dry weather. A list of all the grades can be found in Appendix B.

The disparity between dry and wet weather grades continues. 46% of monitoring locations received fair-to-poor grades during the wet weather season, with 27% of these locations receiving an F. This marked seasonal difference in water quality is why Heal the Bay and public health agencies continue to recommend that no one swim in the ocean during, and for at least three days after, a significant rainstorm. Other than education programs, there have been no major efforts along the coast targeting reductions in fecal bacteria densities from stormwater.

California “Beach Bummers”

Numerous California beaches vied for the “Beach Bummer” crown this year (the monitoring location with the poorest dry weather water quality). The five most polluted beaches in the state were all in LA County. The 10 worst were: Cabrillo Beach harborside at the lifeguard tower in Los Angeles County (10th), Topanga State Beach in Los Angeles County (9th), the Tijuana Rivermouth in San Diego County (8th), Doheny Beach in Orange

2005-2006 Annual Beach Report Card Overall Results

Figure 1.
Number of Grades by Time Period for California Beaches

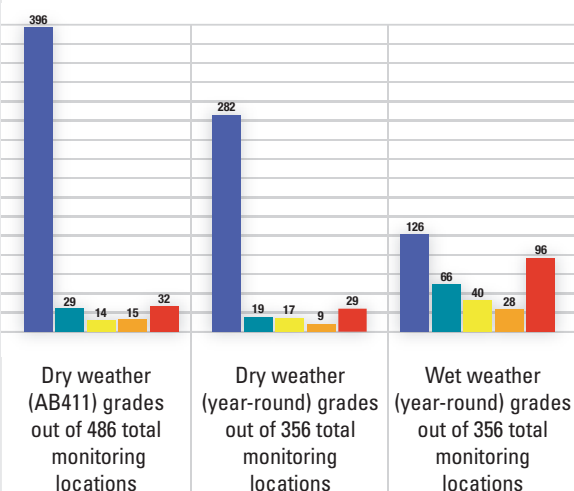
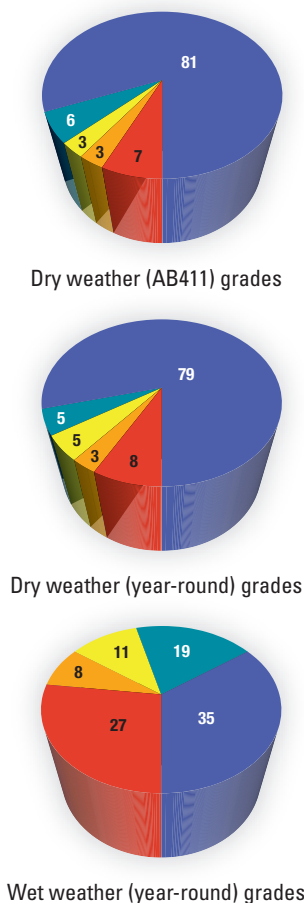


Figure 2.
Percentage of Grades by Time Period for California Beaches



Key: ■ = A ■ = B ■ = C ■ = D ■ = F

California "Beach Bummer" Locations

1	New North Santa Monica Bay TMDL monitoring locations	Los Angeles
2	Will Rogers State Beach at Chautauqua Blvd.	Los Angeles
3	Avalon Beach on Catalina Island	Los Angeles
4	Surfrider Beach in Malibu	Los Angeles
5	Santa Monica Municipal Pier	Los Angeles
6	Pillar Point Harbor at Capistrano Avenue Beach	San Mateo
7	Doheny Beach	Orange
8	Tijuana Rivermouth	San Diego
9	Topanga State Beach	Los Angeles
10	Cabrillo Beach harborside at the lifeguard tower	Los Angeles

County (7th), Pillar Point Harbor at Capistrano Avenue Beach in San Mateo County (6th), the Santa Monica Municipal Pier (5th), Surfrider Beach in Malibu (4th), Avalon Beach on Catalina Island (3rd), and Will Rogers State Beach at Chautauqua Blvd in Los Angeles County (2nd). Multiple locations in the north Santa Monica Bay share the dubious honor of being California's worst "Beach Bummer" this year. As part of the Santa Monica Bay Beaches Bacteria TMDL, data was collected for the first time this past year from the wave wash directly at

the outlet of 14 different storm drains or creeks. Four of these new sites exhibited horrendous water quality, with one of the sites, Escondido Creek just east of Escondido State Beach, having the worst grades in the state for both the AB411 and year-round dry weather time periods (95% of samples exceeded state bacterial standards). The other three most problematic new north Santa Monica Bay monitoring locations were: Castlerock Storm Drain at Castle Rock Beach, Marie Canyon storm drain at Puerco Beach, and the Santa Ynez Storm Drain at Castle Rock Beach.

Heal the Bay strongly commends those agencies that continue their monitoring programs beyond the AB411 required dates of April through October. This action provided approximately 20 additional weeks of water sampling, which meant beachgoers, particularly surfers going out for the winter swells, could continue receiving information about water quality and have the ability to make better health risk decisions concerning their favorite beaches. Year-round monitoring was particularly critical this year, as Southern California had the best winter swell in years.

The Beach Report Card by County

Heal the Bay presents beach report card grades for all coastal county monitoring locations (except for Del Norte County). All grades are updated weekly, except for LA County's new beach bacteria TMDL locations, and can be viewed on our website at www.healthebay.org. Despite our requests, we have been unable to get the TMDL data in a timely manner. Below is a brief summary of each county's monitoring program over the past year, associated water quality issues (if any), and the number of beach closures caused by sewage spills.

DEL NORTE

Historically, monitoring in Del Norte County was conducted in the Crescent City area at Pebble Beach, Crescent City Harbor, and Crescent Beach. For the past three years, Heal the Bay has been unsuccessful in obtaining any new data to include in this report.

Sewage Spill Summary

The county did not provide Heal the Bay with a summary of beach closures due to sewage spills.

HUMBOLDT

With the addition of a monitoring location at Mad River Mouth North in October 2004, Humboldt County has 5 sites on this year's annual report card. The other locations are Trinidad State Beach near Mill Creek, Luffenholtz Beach near Luffenholtz Creek, Moonstone County Park (Little River State Beach) near Little River, and Clam Beach County Park near Strawberry Creek. The Environmental Health Department monitors sampling locations on a weekly basis from April through October. Throughout the winter season sampling is limited to

Humboldt County Results

Figure 3.
Number of Grades by Time Period for Humboldt Beaches

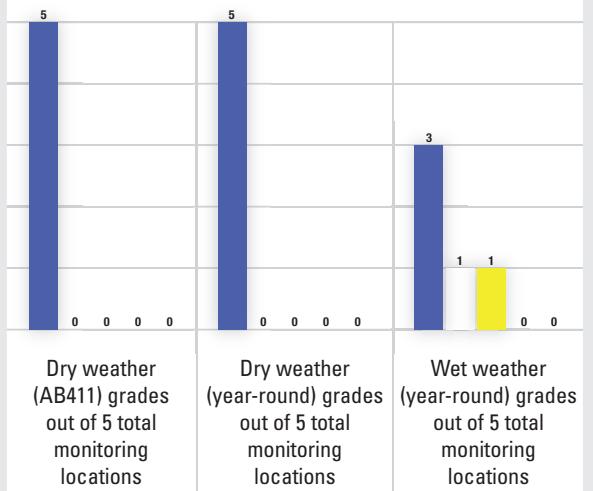
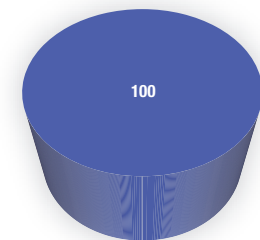
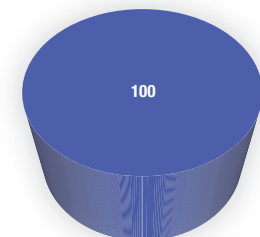


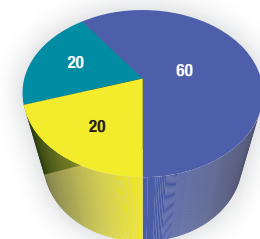
Figure 4.
Percentage of Grades by Time Period for Humboldt Beaches



Dry weather (AB411) grades



Dry weather (year-round) grades



Wet weather (year-round) grades

Key: ■ = A ■ = B ■ = C ■ = D ■ = F

approximately twice a month. The monitoring program is funded by the Environmental Protection Agency's National Beach Guidance and Performance Criteria for Recreational Waters Program. For additional water quality information, please visit Humboldt County's Dept. of Environmental Health website at www.co.humboldt.ca.us/health/envhealth/beachinfo.

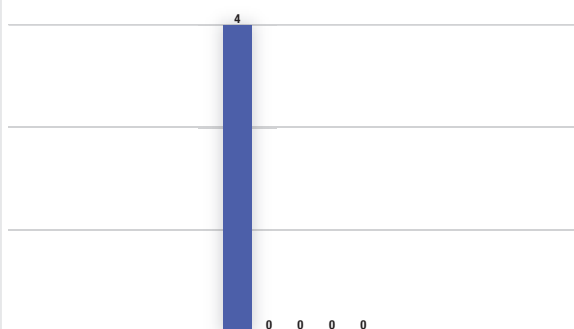
Humboldt County's dry weather water quality was excellent last year. Of the 5 monitored beaches in Humboldt County covered in this report, all locations received A grades for both the summer dry weather time period and overall dry weather period (Figure 3 and 4). During wet weather, Mad River Mouth received the county's lowest grade of C. Moonstone County Park improved from last year's wet weather D grade to a B this year.

Sewage Spill Summary

There were zero (0) reported sewage spills in Humboldt County that led to beach closures.

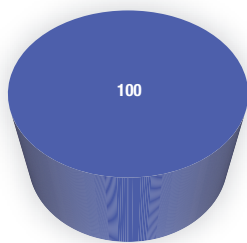
Mendocino County Results

Figure 5.
Number of Grades by Time Period for Mendocino Beaches



Dry weather (AB411) grades out of 4 total monitoring locations

Figure 6.
Percentage of Grades by Time Period for Mendocino Beaches



Dry weather (AB411) grades

Key: ■ = A ■ = B ■ = C ■ = D ■ = F

MENDOCINO

In 2005-2006, Mendocino County consistently monitored 4 locations including Mackerricher Beach State Park at Virgin Creek, Pudding Creek ocean outlet, Big River near Pacific Coast Highway, and Van Damme State Park at the Little River. The Environmental Health Department with assistance from the Mendocino County Chapter of the Surfrider Foundation monitored sampling locations on a weekly basis from April through October. Data was provided for additional sites that were not included in this report due to limited sampling. These sites will most likely appear in the next Annual Report Card. Water quality at the consistently monitored locations was excellent and all 4 received A grades (Figure 5 and 6).

There was an insufficient amount of non-AB411 dry weather, and wet weather data for further analysis.

Sewage Spill Summary

There were zero (0) reported sewage spills in Mendocino County that led to beach closures.

SONOMA

The County of Sonoma, Environmental Health Division monitored seven locations on a weekly basis from April through October, from as far upcoast as Gualala Regional Park Beach to a downcoast location at Doran Regional Park Beach in Bodega Bay. The problematic Campbell Cove was monitored weekly year-round. Samples were collected 25 yards north or south of the mouth of a storm drain or creek. For additional water quality information visit Sonoma County's Department of Environmental Health website at: http://www.sonoma-county.org/health/eh/ocean_testing.htm.

Summer dry weather water quality conditions at all beaches was very good (six As), with the exception of Campbell Cove (Figure 7 and 8). Located at the entrance to Bodega Harbor in Bodega Bay, Campbell Cove again received a poor grade (D) for the April through October time-period (AB411). Campbell Cove State Park Beach continues to suffer from extremely poor water quality during late summer. Water quality at this location was excellent during the earlier part of summer (May through August) but decreased dramatically in September and October. Similar late summer water quality degradation has been seen at this location for the past four years. More on Campbell Cove can be found in the report entitled *"The Bodega Bay-Campbell Cove Tidal Circulation Study, Water Quality Testing, and Source Abatement Measures Project."* This report can be found on Sonoma County's Environmental Health Department's web site.

All sites except Campbell Cove were only monitored from April through October; therefore, there was an insufficient amount of non-AB411 dry weather, and wet weather data for further analysis.

Sewage Spill Summary

There were zero (0) reported sewage spills in Sonoma County that led to beach closures.

Sonoma County Results

Figure 7.
Number of Grades by Time Period for Sonoma Beaches

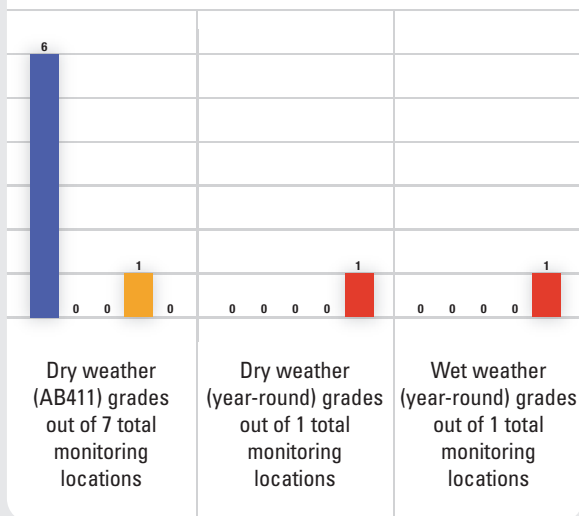
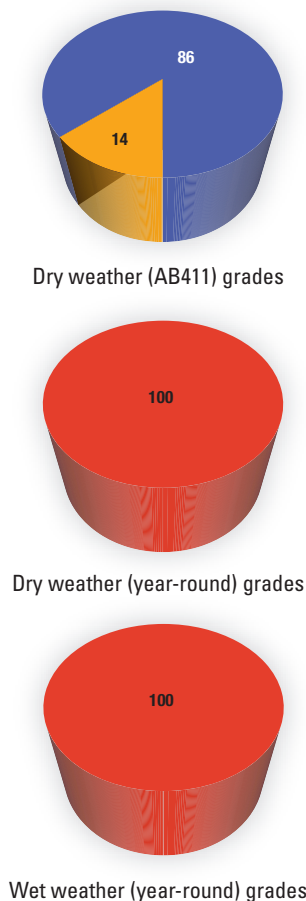


Figure 8.
Percentage of Grades by Time Period for Sonoma Beaches



Key: ■ = A ■ = B ■ = C ■ = D ■ = F

MARIN

Marin County's water quality monitoring program gathered data from 25 bayside and oceanside monitoring locations. Ocean locations included: Dillon Beach, Bolinas Beach (Wharf Road), Stinson Beach, Muir Beach, Rodeo Beach, and Baker Beach. These locations were monitored on a weekly basis from April through October. During the winter season there was no monitoring. For additional water



Muir Beach

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quality information, visit Marin County's Department of Environmental Health website at <http://www.co.marin.ca.us/ehs>.

Marin County Results

Figure 9.
Number of Grades by Time Period for Marin Beaches

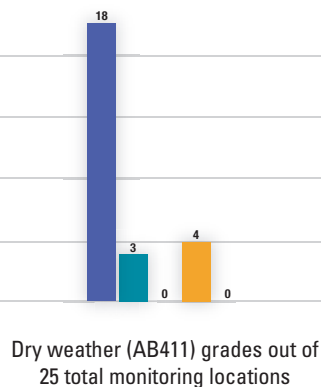
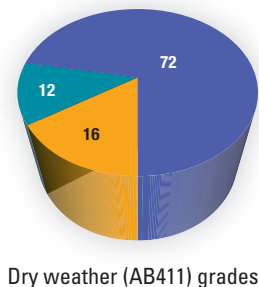


Figure 10.
Percentage of Grades by Time Period for Marin Beaches



Key: A = A B = B C = C D = D F = F

Summer dry weather water quality was good at most beaches in Marin County. (Figure 9 and 10). Four monitoring locations saw a substantial worsening of water quality compared to last year's AB411 time period. Golden Hinde (D), North Muir Beach (D), China Camp (D), and McNears Beach (D) all exceeded the 30-day geometric mean for at least one bacterial indicator on more than half of the sampling days this year. Last year, only China Camp exceeded a geometric mean threshold, and only for a couple of days. As a result, these previously A grade beaches received the lowest grades in the county this year.

There was an insufficient amount of non-AB411 dry weather, and wet weather data for further analysis.

Sewage Spill Summary

There were zero (0) reported sewage spills in Marin County that led to beach closures.

SAN FRANCISCO

The County of San Francisco, in partnership with the San Francisco Public Utilities Commission, continued their weekly monitoring program for ocean and bay shoreline locations. The monitoring program is funded in part through an Environmental Protection Agency National Beach Guidance and Performance Criteria for Recreational Waters grant. The County monitored 14 locations on a weekly basis year-round, from Aquatic Park Beach Hyde Street Pier to Ocean Beach at Sloat Blvd. This year's analysis includes data for three additional sites at Candlestick Point. For additional water quality information please visit San Francisco County's Department of Environmental Health website at: <http://beaches.sfwater.org>.

During the pivotal AB411 time period, all but one of San Francisco's monitoring locations scored an A or B, with only Baker Beach at Lobos Creek receiving a poor mark (F). Year-round dry weather water quality at San Francisco beaches this past year was good. 12 of the 14 locations received A grades (Figure 11 and 12). The two locations with poor dry weather water quality were the Lobos Creek monitoring location (F) and Windsurfer Circle at Candlestick Point (D).

Like many coastal counties, wet weather water quality at San Francisco monitoring sites was poor. 5 of the 14 locations received the highest grades of B (36%) and 9 locations (64%) received fair-to-poor marks.

Sewage Spill Summary

Given the City and County of San Francisco's unique infrastructure, raw sewage spills affecting recreational beaches typically do not occur (see Background Information sidebar). However, combined sewer discharges (CSS) are legally allowed as the result of substantial rainfall and occur during wet weather months.

San Francisco County Results

Figure 11.
Number of Grades by Time Period for San Francisco Beaches

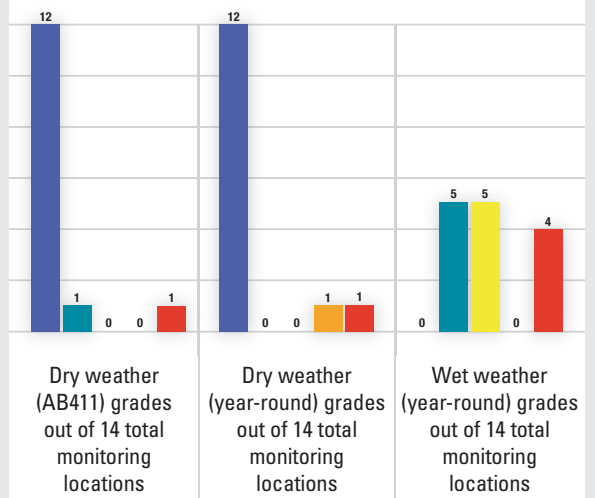
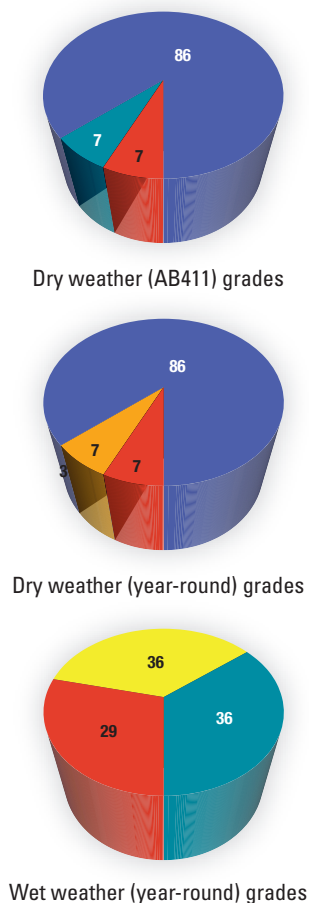


Figure 12.
Percentage of Grades by Time Period for San Francisco Beaches



Key: A = A B = B C = C D = D F = F

Background Information from the San Francisco Public Utilities Commission

The City and County of San Francisco has a storm water infrastructure that occurs in no other California coastal county — a combined sewer and storm drain system (CSS). This system provides treatment to most of San Francisco's stormwater flows. All street runoff during dry weather receives full secondary treatment and all storm flow receives at least the wet weather equivalent of primary treatment, while most storm flows receive full secondary treatment before being discharged through a designated outfall. During heavy rain events, the CSS can discharge combined treated urban runoff and sewage waste water, typically comprised of 94% treated stormwater and 6% treated sanitary flow. In an effort to reduce the number of combined sewer discharges, San Francisco has built a system of underground storage, transport, and treatment boxes to handle major rain events. Because of the CSS, San Francisco's ocean shoreline has no flowing storm drains in dry weather throughout the year, and therefore is not subject to AB411 monitoring requirements, but does have a program that monitors weekly year-round. Although most of San Francisco is served by the CSS, there are some areas of federally owned land and areas operated by the Port of San Francisco that have separate storm drains.



Baker Beach

Because CSS discharges are related to the intensity of rainfall in different parts of the City, different beach sites are affected differently depending on location.

Therefore, Heal the Bay broke San Francisco County into four sub-regions to provide a more localized assessment of the impact of discharges. The four sub-regions are: Aquatic Park Beach & Crissy Field Beach; Baker & China Beach; Ocean Beach & Fort Funston; and Candlestick Point. There was a total of 15 combined sewer discharge events between April 1, 2005 and March 31, 2006 that resulted in portions of San Francisco beaches being closed (not every discharge affected every beach). This was four more than during the same period last year. All but two of the discharges took place in December (10.88 inches of rain) and March (7.95 inches of rain). The Ocean Beach/Fort Funston region led all areas with 11 combined sewage discharges, followed closely by the Baker Beach/China Beach region with 10. The

Candlestick Point State Recreation Area was not impacted heavily, with only two discharges. Aquatic Park Beach/Crissy Field Beach are located in areas where there are separate sewers; discharges from the CSS do not affect these beaches.

SAN MATEO

The County of San Mateo Environmental Health Department monitored 21 beach locations on a weekly basis year-round, from as far upcoast as Sharp Park Beach in Pacifica to a downcoast location of Gazos Beach at Gazos Creek. This year's report welcomes the addition of two new monitoring sites in San Mateo County: one additional site in Pillar Point Harbor, and the other at Dunes Beach. The Health Department utilizes volunteers from the local Surfrider Foundation chapter to assist in the collection of water samples. Samples are collected at a distance of 25 yards north or south of the mouth of a storm drain or creek. For additional water quality information visit San Mateo County's Department of Environmental Health website at: http://www.co.sanmateo.ca.us/smc/departments/home/0,,1954_191102_187763,00.html.

This past year, San Mateo beaches showed excellent summer dry weather water quality (Figure 13 and 14). 19 (90%) of the 21 beach monitoring locations received A grades. Two locations again stood out from the rest with very poor dry weather water quality: Pillar Point Harbor at Capistrano Ave. (F), and Venice Beach at Frenchman's Creek (F). This is the third year that Pillar Point Harbor at Capistrano Avenue has made it onto the statewide 'Beach Bummers' list. However, this monitoring location is not a frequently visited beach.

Wet weather water quality in San Mateo was fair. 76% of beaches received A or B grades during wet weather. Linda Mar Beach at San Pedro Creek (D), three locations in Pillar Point Harbor (all Fs), and Venice Beach (F) received the county's worst wet weather grades.

Sewage Spill Summary

There were zero (0) reported sewage spills in San Mateo County that led to beach closures.

San Mateo County Results

Figure 13.
Number of Grades by Time Period for San Mateo Beaches

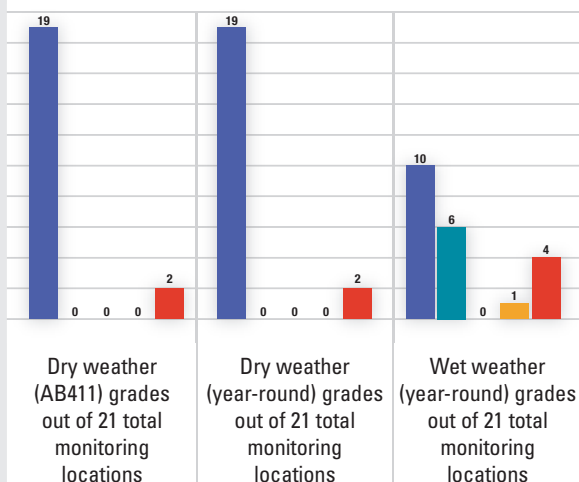
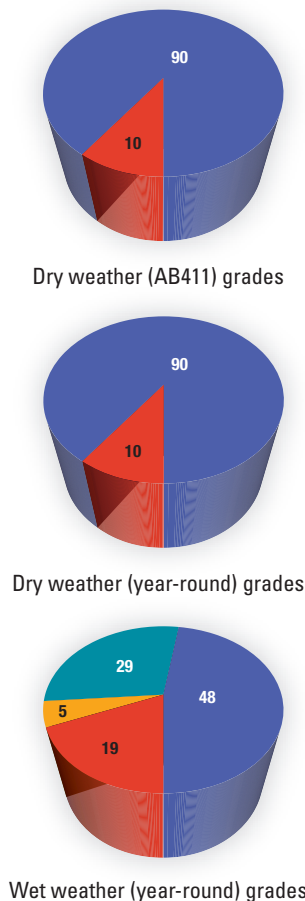


Figure 14.
Percentage of Grades by Time Period for San Mateo Beaches



Key: ■ = A ■ = B ■ = C ■ = D ■ = F

Santa Cruz County Results

Figure 15.
Number of Grades by Time Period for Santa Cruz Beaches

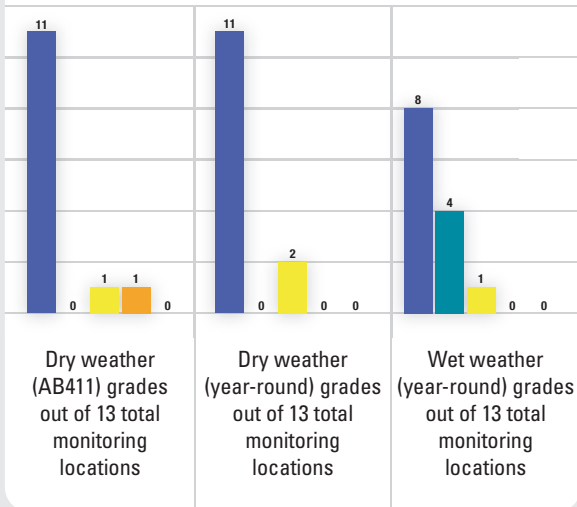
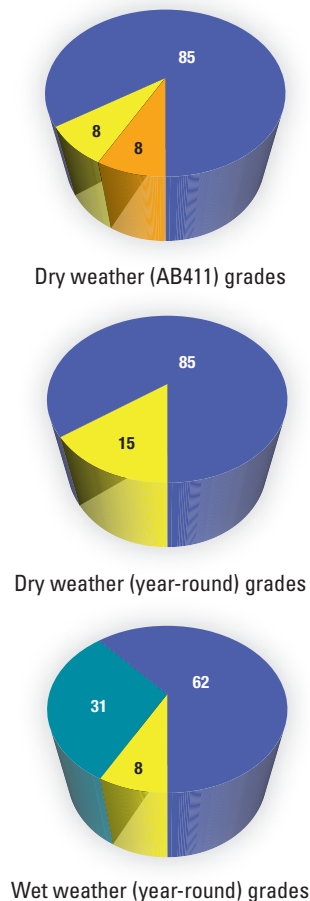


Figure 16.
Percentage of Grades by Time Period for Santa Cruz Beaches



Key: A = A B = B C = C D = D F = F

SANTA CRUZ

Last year the County of Santa Cruz Environmental Health Services monitored approximately 25 shoreline locations. However, only 13 of these were monitored frequently enough year-round to be included in this report. Santa Cruz County's monitored beaches range from as far upcoast as Waddell Creek Beach at Waddell Creek near Big Basin Redwood Park to a downcoast location at Palm Beach, near the Pajaro River. Most samples are collected at the wave wash (where runoff meets surf), or 25 yards north or south of the mouth of a storm drain or creek. For additional water quality information visit Santa Cruz County's Department of Environmental Health Services website at: <http://sccounty01.co.santa-cruz.ca.us/eh/>.

Overall dry weather water quality at all beaches in Santa Cruz County was good (Figure 15 and 16). During the summer dry weather months, all but two of Santa Cruz beaches received As; Cowell Beach west of the wharf (D) and Capitola Beach west of the jetty (C). Year-round dry weather water quality was very similar to the summer dry weather with Cowell Beach at the wharf receiving a slightly higher C grade.

Santa Cruz County's wet weather water quality was well above the state average. 12 of the 13 (92%) locations with wet weather data received an A or a B grade. Only Capitola Beach west of the jetty scored slightly lower with a grade of C.

Sewage Spill Summary

There were zero (0) sewage spills in Santa Cruz County that led to beach closures reported to Heal the Bay.

MONTEREY

The County of Monterey Environmental Health Agency monitored eight locations on a weekly basis from April through October, from as far upcoast as the Monterey Beach Hotel at Roberts Lake in Seaside to a downcoast location of Carmel City Beach in Carmel by the Sea. The county monitored some of these locations on a monthly basis from November to March. For additional water quality information visit Monterey County's Environmental Health Agency website at: <http://www.co.monterey.ca.us/health/beaches/>.



Capitola

During the summer dry weather months, all monitoring locations in Monterey County received A grades (Figure 17 and 18). Stillwater Cove at the Beach and Tennis Club scored markedly better than it has in the past. As its name implies, Stillwater Cove generally has poor circulation and little tidal flushing, but this year, received its first A grade in 5 years.

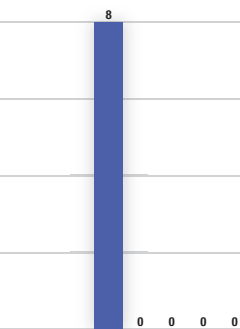
With Monterey County only monitoring weekly from April through October, there was insufficient non-AB411 dry weather, and wet weather data for analysis.

Sewage Spill Summary

There were zero (0) reported sewage spills in Monterey County that led to beach closures.

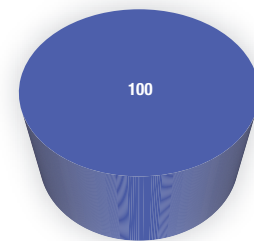
Monterey County Results

Figure 17.
Number of Grades by Time Period for Monterey Beaches



Dry weather (AB411) grades out of 8 total monitoring locations

Figure 18.
Percentage of Grades by Time Period for Monterey Beaches



Dry weather (AB411) grades

Key: ■ = A ■ = B ■ = C ■ = D ■ = F

San Luis Obispo County Results

Figure 19.
Number of Grades by Time Period for San Luis Obispo Beaches

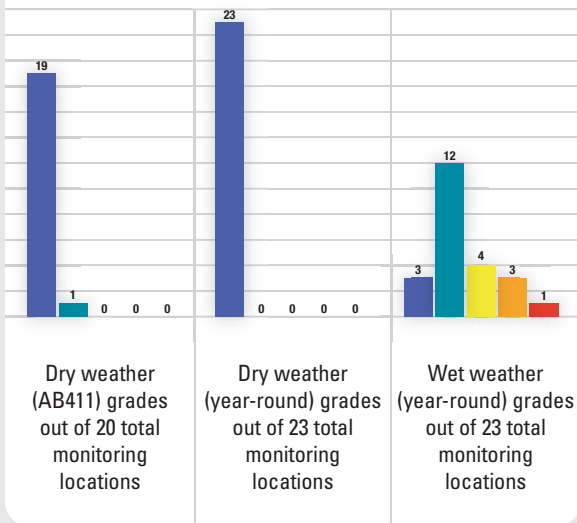
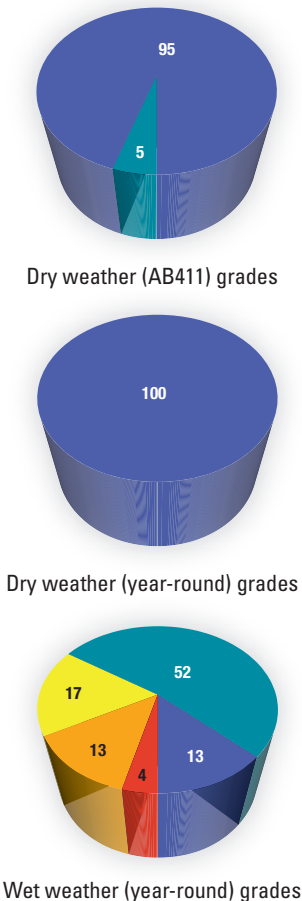


Figure 20.
Percentage of Grades by Time Period for San Luis Obispo Beaches



Key: A = A B = B C = C D = D F = F



Pismo Beach Pier

SAN LUIS OBISPO

The County of San Luis Obispo Environmental Health Department consistently monitored 5 new locations this year, making a total of 23 monitoring locations from as far upcoast as Hearst State Beach to a downcoast location at Pismo State Beach in Oceano. The additional locations now monitored weekly include two at Hearst State Beach, one at the projection of Pico Avenue in San Simeon, Sewers at Silver Shoals Drive and the projection of Spyglass Drive near Spyglass Park. Most samples are collected 25 yards north or south of the mouth of a storm drain or creek. For additional water quality information visit San Luis Obispo County's Environmental Health Department website at: http://www.slopublichealth.org/environmentalhealth/beach_status.htm.

Dry weather water quality in San Luis Obispo County was excellent again. 100% of the monitoring locations received A or B grades (Figure 19 and 20) for both the AB411 time period and year-round dry weather. Pismo Beach Pier slipped from last year's A to receive the county's lowest and only dry weather B.

In San Luis Obispo, during wet weather, water quality was much better than the previous year's extremely rainy wet season. This year, 8 of the 23 (35%) locations moni-



Arroyo Burro Beach

tored received fair-to-poor grades compared to 83% in 2004–2005. Morro Bay City Beach north of the main parking lot, Sewers at Silver Shoals Drive, and Hazard Canyon in Montana de Oro State Park received wet weather A grades this year.

Sewage Spill Summary

There were five San Luis Obispo County beach closures due to sewage spills this past year. The total estimated volume spilled was 105,700 gallons. Two of the three major spills ($\geq 10,000$ gallons) occurred during heavy rains in January. A spill of approximately 13,000 gallons into San Luis Creek caused a closure at Avila Beach for about a week, and the county's largest spill occurred the same week with approximately 80,000 gallons released into Pismo Creek and closing Pismo Beach. A third major spill occurred back in August 2005, when approximately 10,000 gallons of sewage streamed to Avila Beach due to a computer glitch at the Los Osos Valley Road plant. Avila Beach was closed for 2 days.

Santa Barbara County

Figure 21.
Number of Grades by Time Period for Santa Barbara Beaches

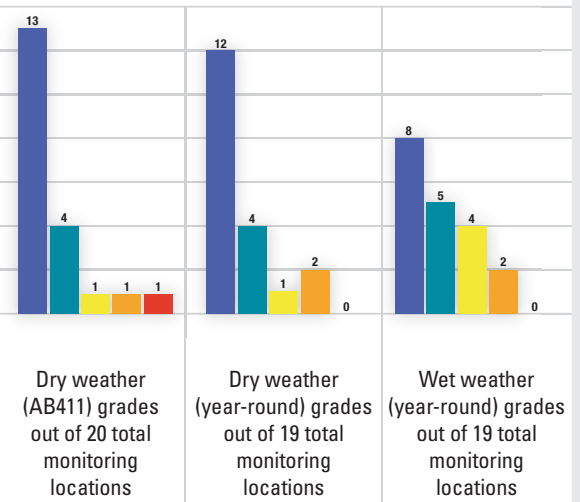
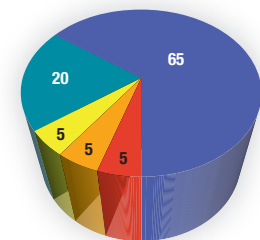
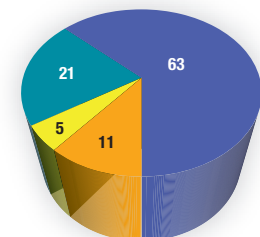


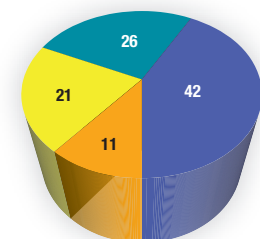
Figure 22.
Percentage of Grades by Time Period for Santa Barbara Beaches



Dry weather (AB411) grades



Dry weather (year-round) grades



Wet weather (year-round) grades

Key: A = A B = B C = C D = D F = F

Santa Barbara County Results Continued

Figure 23.
2005-2006 Santa Barbara County Dry Weather Water Quality
Compared to the previous Two-Year Average (2003-2005)

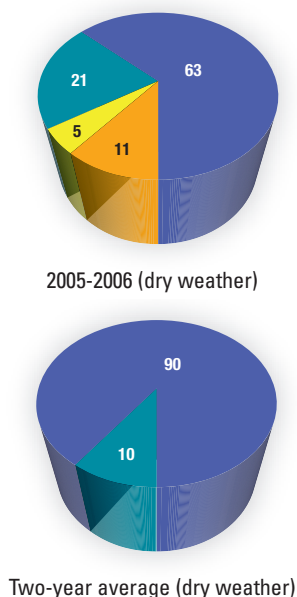
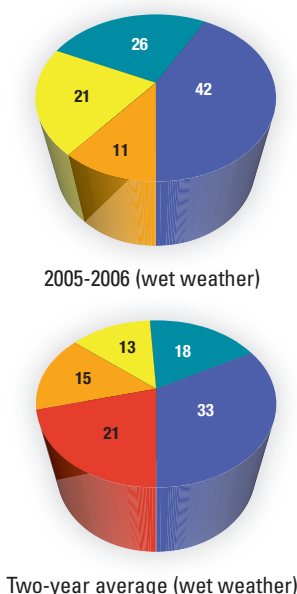


Figure 24.
2005-2006 Santa Barbara County Wet Weather Water Quality
Compared to the Two-Year Average (2003-2005)



Key: A = A B = B C = C D = D F = F

SANTA BARBARA

The County of Santa Barbara Environmental Health Agency monitored 20 locations on a weekly basis throughout the year, from as far upcoast as Guadalupe Dunes south of the Santa Maria River outside the City of Guadalupe to a downcoast location of Rincon at Bates Beach. Most samples are collected 25 yards north or south of the mouth of a storm drain or creek. For additional water quality information visit Santa Barbara County's Environmental Health Agency website at: <http://www.sbcphd.org/ehs/ocean.htm>.

Both summer and year-round dry weather water quality at most beaches in Santa Barbara County was very good. Of the 19 year-round water quality monitoring locations, 16 received good-to-excellent water quality marks during dry weather (Figure 21 and 22). Arroyo Burro Beach (D), East Beach at Mission Creek (D) and Jalama Beach (C) received the county's lowest grades for the summer months.

Santa Barbara's wet weather water quality was poor, but better than the statewide average. 13 of 19 locations (68%) received wet weather grades of A or B.

Heal the Bay presents a brief trends assessment of Santa Barbara County beaches by comparing this year's results with the previous two years' average. There were no dry weather grades lower than a B in the previous two years. (Figure 23 and 24) This year, 3 out of 19 monitoring locations received less than a B (16%) for dry weather. This year's wet weather was better than the 2003-2005 average, due to the extremely wet season in 2004-2005. Only 32% of beaches received fair-to-poor grades this past rainy season compared to the past average of 49%. There were no wet weather F grades in Santa Barbara County this year (all previous year's grades were rerun with our new methodology).

Sewage Spill Summary

There were zero (0) reported sewage spills in Santa Barbara County that led to beach closures.

VENTURA

The County of Ventura Environmental Health Division, monitored 56 locations on a weekly basis from April through October, from as far upcoast as Rincon Beach south of the creek (near the Santa Barbara County line) to a downcoast location at Staircase Beach, located at the north end of Leo Carrillo State Beach. Ventura County significantly diminished their winter water quality monitoring program again this year due to budget issues. Last year's winter sampling in Ventura County was completed at only 20 of the 56 sites, whereas this year's monitoring occurred at only 11 locations from November through March at predominate surf and recreational beaches. Most samples are collected between 25 to 50 yards north or south of the mouth of a storm drain or creek. For additional water quality information visit Ventura County's Environmental Health Division website at: <http://www.ventura.org/envhealth/programs/ocean/>.

For the sixth year in a row, overall AB411 water quality at Ventura County beaches was excellent (Figure 25 and 26), and proved to be the best water quality in Southern California this year. Of the 56 water quality monitoring locations during summer dry weather, 55 (98%) locations received good-to-excellent water quality marks. The only Ventura County beach to receive a summer dry weather grade lower than a B was San Buenaventura Beach south of the drain at San Jon Rd. (C). For the second year in a row, the Hobie/Kiddie Beach monitoring locations in Channel Islands Harbor have seen improved water quality. Although these beaches used to be monitored year-round to give a more accurate representation of water quality, this year all 4 locations received A grades for the AB411 time period. It remains to be seen if this year's results are the continuation of a longer trend or merely an anomaly. Beachgoers should still using caution when choosing

Ventura County Results

Figure 25.
Number of Grades by Time Period for Ventura Beaches

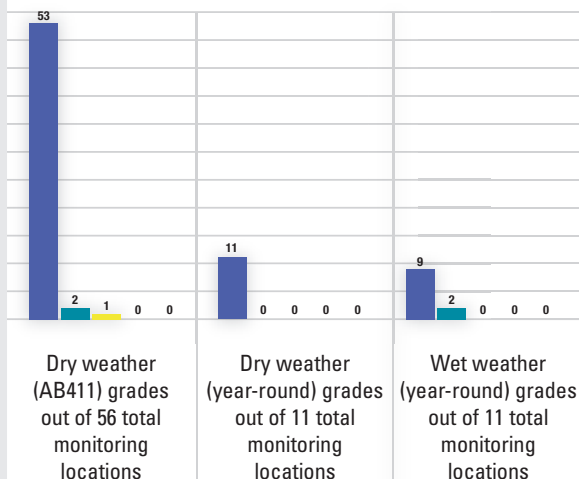
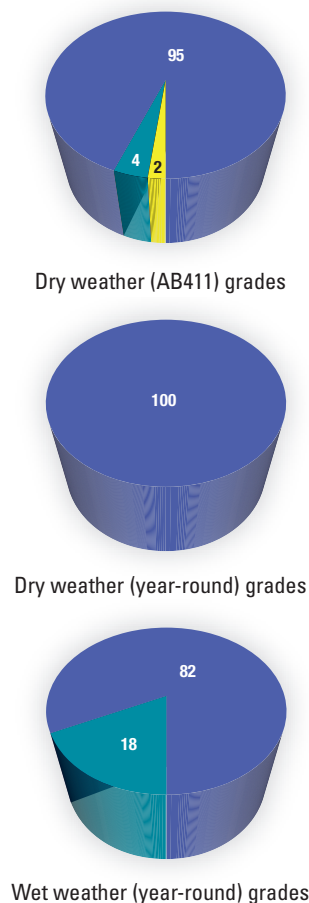


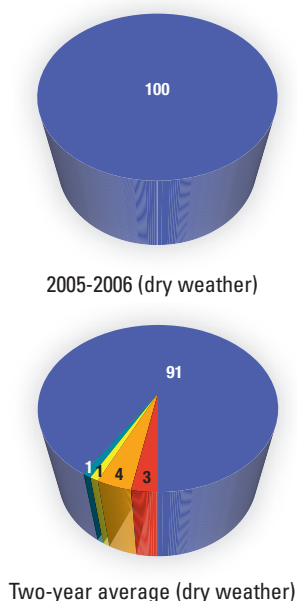
Figure 26.
Percentage of Grades by Time Period for Ventura Beaches



Key: A = A B = B C = C D = D F = F

Ventura County Results Continued

Figure 27.
2005-2006 Ventura County Dry Weather Water Quality
Compared to the Two-Year Average (2003-2005)

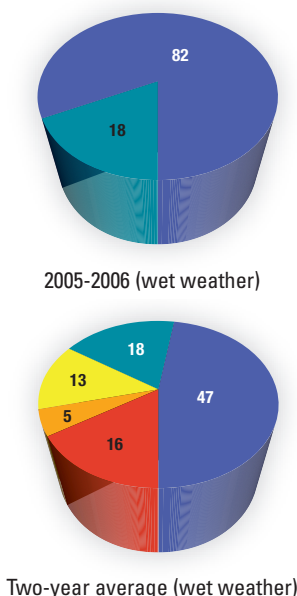


San Buenaventura Beach at San Jon Road drain

these sites and all other enclosed beaches. The problematic San Buenaventura Beach south of San Jon drain was not monitored year-round.

Wet weather water quality was excellent at the 11 locations that were monitored year-round. The only two locations not to receive A grades were Peninsula Beach north of the south jetty (B) and Silverstrand at San Nicholas Avenue south of the jetty (B).

Figure 28.
2005-2006 Ventura County Wet Weather Water Quality
Compared to the Two-Year Average (2003-2005)



Heal the Bay presents a brief trends assessment of Ventura County beaches by comparing this year's percentage results with the previous two year's average (all previous year's grades were rerun with our new methodology). Figure 27 shows that no monitoring locations received less than an A for year-round dry weather this year. However, there were only 11 year-round monitoring locations this year compared to 20 last year and 56 in 2003-2004. As for wet weather (Figure 28), all 11 locations monitored year-round this year received As or Bs. However, 9 monitoring locations with fair-to-poor wet weather water quality in 2004-2005 were not monitored this past winter.

Sewage Spill Summary

There were no known sewage spills that led to beach closures in Ventura County reported to Heal the Bay.

LOS ANGELES

There are four agencies within the County of Los Angeles that contributed monitoring information to Heal the Bay's Beach Report Card. The City of Los Angeles' Environmental Monitoring Division at the Hyperion Sewage Treatment Plant monitored 14 new sites this year as part of the Santa Monica Bay Beaches Bacteria TMDL for a total of 34 locations. 19 of these are monitored weekly, and the other 15 are monitored more frequently. The Los Angeles County Department of Health Services monitored 31 locations on a weekly basis. The Los Angeles County Sanitation Districts monitored eight locations, six of which are monitored daily and two weekly. And finally, the City of Long Beach, Environmental Health Division, monitored 23 locations on a weekly basis. Most monitoring programs except Long Beach collect samples throughout the year at the mouth of a storm drain or creek. For additional water quality information visit Los Angeles County's Department of Health Services website at: <http://lapublichealth.org/phcommon/public/eh/rechlt/ehrecocdata.cfm>; or the City of Long Beach at: <http://www.ci.long-beach.ca.us/health/organization/eh/water/>.

Both the City and County DHS programs' move to sampling at the mouth of flowing storm drains and creeks, due to the Santa Monica Bay beach bacteria TMDL, has resulted in the county's grades being well below the state average. Heal the Bay believes that sampling at the outfall (point zero) of these drains and creeks gives beachgoers a more accurate picture of water quality.

Both summer dry weather and year-round dry weather water quality were poor in Los Angeles County this past year. Only 69% of the locations received an A or B for the summer months, and year-round dry weather was very similar with 68% receiving As or Bs (Figures 29 and 30). There were some stretches of good water quality in western Malibu from Nicholas Beach to Trancas Canyon. The

Los Angeles County Results

Figure 29.
Number of Grades by Time Period for Los Angeles Beaches

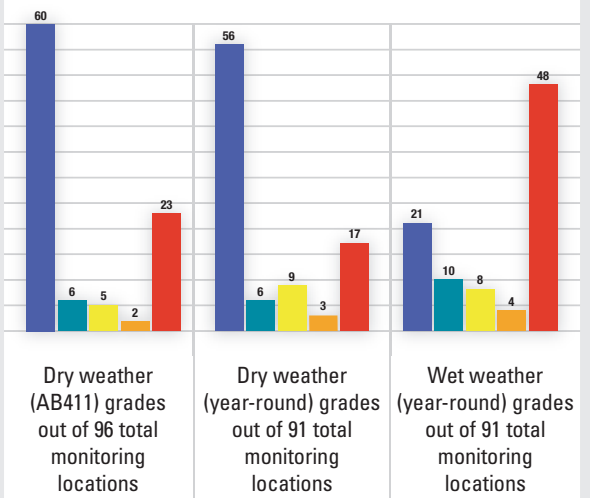
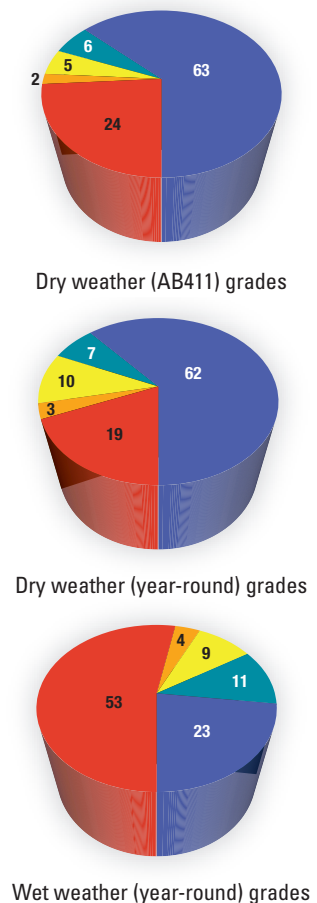


Figure 30.
Percentage of Grades by Time Period for Los Angeles Beaches



Key: A = A B = B C = C D = D F = F

rest of Malibu and Topanga Beach though north Santa Monica to the Pico/Kenter storm drain suffered from fair-to-poor water quality at almost all monitoring sites for both the AB411 and year-round dry weather time periods. Along this stretch there were a handful of locations with better water quality including: Puerco Beach (B) Big Rock Beach (A) and Pena Creek at Las Tunas County Beach (A), the Bel Air Bay Club fence (B) and Santa Monica Beach at



Topanga State Beach lagoon

Montana Avenue (A) and Wilshire (A). Much better water quality was seen south of the Pico/Kenter storm drain (C). In fact, mostly very good-to-excellent water quality was found from Strand Street in Santa Monica all the way to south Long Beach, with the exception of Ballona Creek (F), the Redondo Municipal Pier (F) and Cabrillo Beach harborside at the lifeguard tower (F).

Of the approximately 30 locations in the northern part of Santa Monica Bay (from Leo Carrillo downcoast to Chautauqua Blvd.), about 75% had significant water quality problems sometime during the year. These beaches make up roughly one third of the 91 year-round LA County monitoring locations, but account for almost 70% of the County's poor dry weather water quality. For example, Paradise Cove received F grades for all three time periods (dry, summer dry and wet). Unfortunately, so did Escondido Beach at Escondido Creek, Dan Blocker County Beach at Solstice Canyon., Puerco Beach at the Marie Canyon drain, Surfrider at the breach, Topanga, Castle Rock Beach, and Will Rogers State Beach at both Pulga Canyon and Santa Monica Canyon. Escondido Creek just east of Escondido State Beach, had the worst water quality in the state for both the AB411 and year-round dry weather time periods with 95% of samples exceeding state bacterial standards.

Both Malibu Point at the colony fence and the Malibu Pier slipped from A grades last year to Cs during the AB411 time period. Big Rock Beach saw a dip in year-round dry weather water quality this year and received a C grade after earning As for the two previous years. Topanga State Beach has experienced a dramatic drop in water quality over the past couple of years and earned Fs for all three time periods this year. Water quality at the Redondo Municipal Pier was also poor for all three time periods this past year. While the pier's wet weather grade improved slightly from the torrential rains and an F grade in 2004–2005 to a D this year, dry weather and AB411 time period water quality slipped to F grades from good and fair marks the previous year (all previous year's grades were rerun with our new methodology).

Cabrillo Beach harborside at the life-guard tower has the dubious distinction of having earned F grades for all time periods over the last 3 years. All monitoring locations at Avalon Beach on Catalina Island received F grades for the AB411 time period this past year. As usual, these 5 beaches were not monitored year-round. Most Long Beach monitoring locations had very good water quality during the AB411 time period this year, but for the past two years, every monitoring location has received an F grade during wet weather. This demonstrates the enormous influence of the Los Angeles River and other drains on water quality during rainfall events.



Redondo Municipal Pier

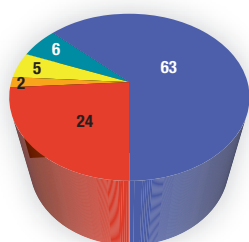
Overall, wet weather water quality in Los Angeles County improved from last year's extremely wet year. During wet weather, 66% of the 91 monitored locations received a fair-to-poor water quality grade, with 53% of the beaches receiving an F grade. Leo Carrillo to Zuma Beach in Malibu and

Malaga Cove to Cabrillo Beach on the oceanside were the only

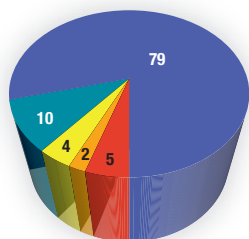
major stretches of beach in Los Angeles County to exhibit good water quality during wet weather this year.

Los Angeles County Results Continued

Figure 31.
2005-2006 Los Angeles County AB411 Water Quality
Compared to the Two-Year Average (2003-2005)



2005-2006 (AB411)



Two-year average (AB411)

Key: A = A B = B C = C D = D F = F

General Water Quality Trends for Santa Monica Bay

Heal the Bay analyzed trends for both dry and wet weather water quality for Los Angeles County beaches to determine how this year's water quality results compared to the past two-year average. The overall 2005-2006 dry weather water quality for Santa Monica Bay beaches was well below the previous average, with only 68% of the locations receiving an A or B as compared the two-year average of 91% (Figure 31 and 32). Only 5 of the brand new TMDL monitoring locations (36%) received higher than a C grade during year-round dry weather. 8 of the 14 (57%) brand new locations received F grades for the AB411 time period. Also, most monitoring locations at the outlet of storm drains or creeks were moved to directly at the confluence of the outlet flow and the wave wash this past year. This dip in the grades shows the dra-

matic difference in water quality between the previous sampling locations (approximately 25 yards away from the outlet) and the new sites that are directly influenced by watershed and urban runoff flows.

Wet weather water quality, despite the new sampling locations being moved to the mouth of storm drains and creeks, was better this year than during the extremely wet 2004–2005 winter season, but was moderately worse than the past two-year average (Figure 33).

Beach Cleanup Projects Coming Soon

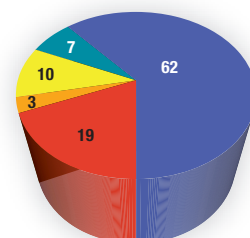
Although the news for many Los Angeles county beaches was disturbing, there is help on the way. The City of Los Angeles is shifting the operation of their runoff diversions to include the seven months from April 1st to October 31st, starting this summer. The three major ongoing projects include upgrades of runoff diversions at Will Rogers at Chautauqua and Temescal Canyon by the end of the summer of 2006, and major beach configuration, water circulation, and source abatement efforts at Cabrillo Beach to be completed by 2007. The Los Angeles County Department of Public Works is partnering on the Will Rogers at Chautauqua project.

The County of Los Angeles Department of Public Works has a number of projects designed to improve shoreline water quality in Santa Monica Bay. The County is proposing a multi-stage treatment BMP with ultraviolet disinfection at Marie Canyon to be completed by February 2007. Also, the County has already constructed a state of the art infiltration pit at Redondo Beach.

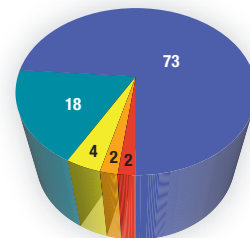
In Malibu, four projects are scheduled for completion that should help improve beach water quality conditions. All of these projects are located at F beaches. Thanks to the State Water Board Clean Beach Initiative and the Santa Monica Bay Restoration Commission, the

Los Angeles County Results Continued

Figure 32.
2005-2006 Los Angeles County Dry Weather Water Quality Compared to the Two-Year Average (2003-2005)

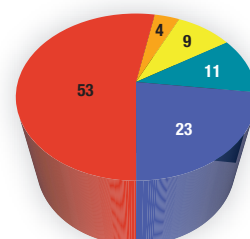


2005-2006 (dry weather)

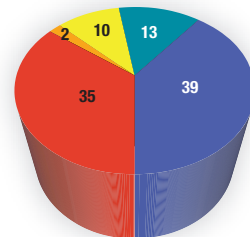


Two-year average (dry weather)

Figure 33.
2005-2006 Los Angeles County Wet Weather Water Quality Compared to the Two-Year Average (2003-2005)



2005-2006 (wet weather)



Two-year average (wet weather)

Key: ■ = A ■ = B ■ = C ■ = D ■ = F

long awaited Malibu Civic Center runoff treatment facility is scheduled for completion and operation by the fall of 2006. Malibu purchased the Chili Cookoff site in the Malibu Civic Center area (now called Legacy Park) and is planning to build a treatment wetland project by 2010 to 2012. The runoff treatment facility at Paradise Cove will be enlarged to handle all of the flow from Ramirez Canyon by some time in 2007. This Clean Beach



Long Beach City Beach projection of 10th Place

Initiative project is a unique partnership between Malibu, the Santa Monica Baykeeper and the land owner. 4) In addition, the Los Angeles County Department of Public Works is scheduled to complete a runoff treatment facility at Marie Canyon at Puerco Beach by 2007.

Sewage Spill Summary

There were 15 sewage spills in LA County reported to Heal the Bay this past year. The biggest spill was approximately 2 million gallons of raw sewage released when the sewage pumping plant at 27th and the Strand in Manhattan Beach stopped working on 1/15/06. A “triple failure” of a failed alarm system, shorted electrical panel and a dysfunctional backup power generator led to the pumping plant failure which took over 12 hours to repair. As a result, sewage backed into homes, was released through manhole covers, into flood control channels, and directly into the ocean. Beaches from Dockweiler at the Hyperion Treatment Plant downcoast to Malaga Cove were closed for 5 days, although the vast majority of the sewage was confined to the beach. On February 1st, 21st Street in Manhattan Beach was closed again for an additional 42 days due to extremely high bacteria counts lingering in the sand.

There were 3 other major spills ($\geq 10,000$ gallons) reported to Heal the Bay that accounted for 72% of the remaining spill volume for 2005–2006. One of the largest occurred on Sunday March 19th, 2006 when 20,000 gallons of sewage entered Centinela Creek/Ballona Creek. Remarkably, no beaches were closed after this spill. The public was not notified of this spill for 3 days. Except for the Manhattan Beach spill, no sewage spills in LA County led to beach closures.

As a public health protection measure, a more precautionary approach must be adopted when a spill has reached a water body and has the potential to impact the beach. This means that the County must follow its existing Beach Closure and Public Notification Protocol and State Health Standards as required under AB411. The Los Angeles County Department of Health Services must evolve from utilizing its ‘wait-and-see’ approach for protecting the public’s health to the

Orange County Results

Figure 34.
Number of Grades by Time Period for Orange Beaches

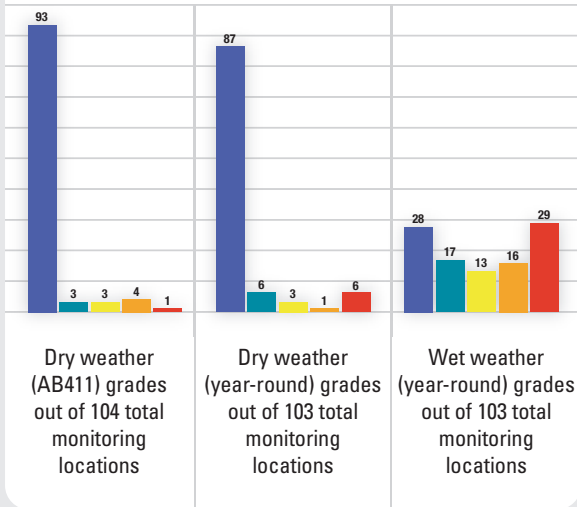
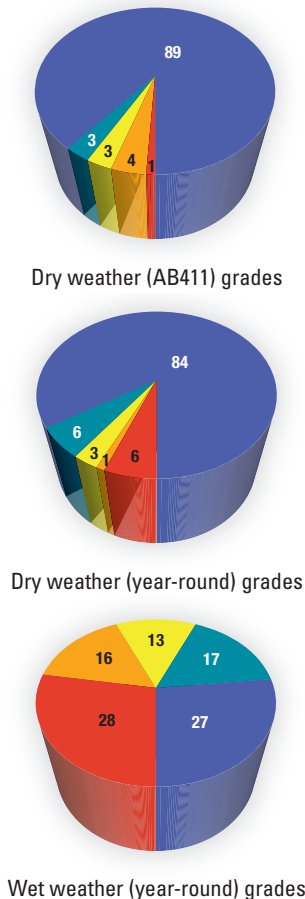


Figure 35.
Percentage of Grades by Time Period for Orange Beaches



Key: A = A B = B C = C D = D F = F

more precautionary approach adopted by Orange and San Diego Counties. It has been estimated that over 450 spills occur each year in the City of Los Angeles*, which doesn't include the LA County Sanitation District's service area, but amazingly, this has resulted in an average of only 2 beach closures per year by LA County Department of Health Services. [*estimate from US Department of Justice press release – 8/6/04]

Additionally, as the major Ballona Creek spill in March demonstrated, a meeting between public agencies involved with wastewater operations, public health protection, and other stakeholders must take place immediately to revisit sewage spill response action plans and public notification protocols, so that the two public notification gaps (timely reporting of sewage spills to the public health departments and appropriate notification measures of sewage spills by the county health department to beachgoers) can be resolved. The County Sanitation Districts of Los Angeles County's development of a sewage spill action response plan and a standard public notification protocol, as required in the Joint Water Pollution Control Plant permit (NPDES Permit No. CA0053813, CI-1758), will address the currently inadequate public notification procedures. The City of Los Angeles needs to take a leadership role in this process.

ORANGE

There are three agencies within Orange County that provide monitoring information to Heal the Bay's Beach Report Card. The South Orange County Wastewater Authority monitored 33 locations once or twice a week. The County of Orange Environmental Health monitored 95 locations on a weekly basis, of which approximately 55 locations are covered in the Beach Report Card. The Orange County Sanitation District monitored 17 locations five times a week.



Baby Beach, Dana Point Harbor

Samples were collected throughout the year along open coastal and bay beaches, as well as near flowing storm drains, creeks or rivers. For additional water quality information visit the County of Orange Environmental Health's website at www.ocbeachinfo.com.

Orange County grades for both year-round dry weather and the AB411 time period improved to better than the statewide average this year. At least 90%

of monitoring locations received an A or B (Figure 34 and 35). Stretches of Orange County beaches with very-good-to-excellent water quality during the summer dry weather time-period were: Seal Beach at 1st Street to Huntington State Beach at Brookhurst Street, Newport Beach at Orange Street all the way to Three Arch Bay in Laguna Beach, and from Avenida Pico to Las Palmeras at San Clemente City and State Beaches.

10 Orange County locations received fair-to-poor year-round dry weather water quality grades. All of these locations were at Doheny Beach or in Dana Point Harbor except for north Monarch Beach (C). These monitoring locations that perennially have poor water quality are: North Beach through 4000 feet south of the SERRA ocean outfall (Doheny Beach) and Baby Beach's west end in Dana Point Harbor. Doheny Beach from North Beach to south of the San Juan Creek once again made Heal the Bay's statewide Beach Bummer list as one of the most polluted beaches in California. Poche Beach (C) was the only location other than those mentioned above, to receive a fair-to-poor grade for the AB411 time period.

Wet weather quality dramatically improved this past year after a dismally wet and polluted season last year. 56% of monitoring locations received fair-to-poor grades compared to 88% in 2004-2005.

Figures 36 and 37 illustrate a small trends assessment of this year's grade percentages at Orange County beaches compared to the two-year average. For all weather conditions, this year's water quality saw marked improvement from the previous two years (all previous year's grades were rerun with our new methodology).

Sewage Spill Summary

Orange County beach closures due to sewage spills returned to 2003-2004 levels after a dramatic spike in both the volume and number of sewage spills in 2004-2005 due to the extremely high rainfall during that year's winter season. There were 25 spills resulting in beach closures between April 2005 and March 2006. Six of these were of unknown volumes. The remaining 19 spills released

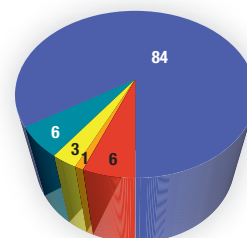


Doheny Beach

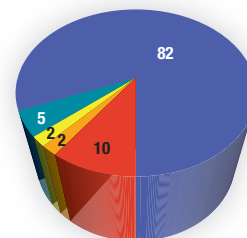
approximately 100,000 gallons of sewage to local beaches. There were two major spills ($\geq 10,000$ gallons) that accounted for 92% of the known sewage spill volume. The first major spill resulted in closures from 1000ft upcoast of Aliso Creek downcoast to Camel Point in Laguna Beach. Approximately 12,000 gallons were released on October 24, 2005 due to a blockage in an El Toro Water District line. The second major spill of approximately 80,000 gallons occurred on December 5, 2005 due to a South Coast Water District main line breakage. Monarch Beach downcoast through Dana Strand Beach in Dana Point were closed for three days. The average known spill volume from April through October was 866 gallons; and the average known spill volume from November through March was 10,599 gallons.

Orange County Results Continued

Figure 36.
2005-2006 Orange County Dry Weather Water Quality
Compared to the Two-Year Average (2003-2005)

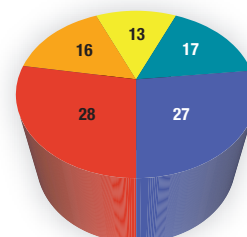


2005-2006 (dry weather)

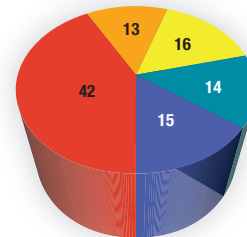


Two-year average (dry weather)

Figure 37.
2005-2006 Orange County Wet Weather Water Quality
Compared to the Two-Year Average (2003-2005)



2005-2006 (wet weather)



Two-year average (wet weather)

Key: ■ = A ■ = B ■ = C ■ = D ■ = F



Oceanside, at the San Luis Rivermouth

SAN DIEGO

There are six agencies within San Diego County that provided monitoring information to Heal the Bay's Beach Report Card: the City of Oceanside, the City of San Diego, Encina Wastewater Authority, San Elijo Joint Powers Authority, the San Onofre Generating Station, and the County of San Diego Department of Environmental Health. A majority of the 93 monitoring locations monitored during summer dry weather (AB411) and covered by the Beach Report Card are sampled and analyzed by the City and County of San Diego. Only 55 of these locations were monitored consistently year-round. Samples are generally collected at the wave wash (where runoff and ocean water mix) or a distance away from a flowing storm drain, creek or river. For additional water quality information visit the County of San Diego Department of Environmental Health's website at: <http://www.sdcountry.ca.gov/deh/twq/beachbay/index.html>.

Dry weather water quality at beaches in San Diego County was very good. Of the 55 year-round water quality monitoring locations, 89% received good-to-excellent water quality marks (Figure 38 and 39). San Diego County's water quality during the summer dry weather time-period was nearly identical, with 90% of the monitored locations receiving an A or B grade. Long stretches

San Diego County Results

Figure 38.
Number of Grades by Time Period for San Diego Beaches

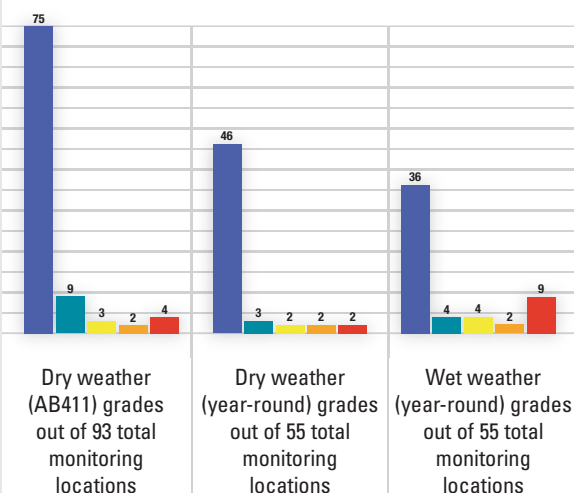
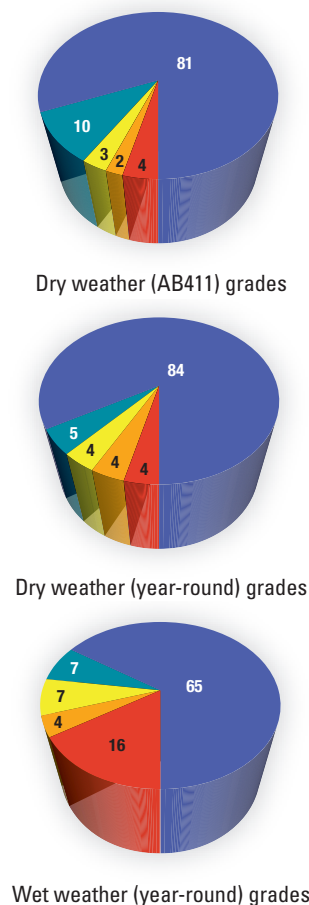


Figure 39.
Percentage of Grades by Time Period for San Diego Beaches



Key: ■ = A ■ = B ■ = C ■ = D ■ = F

San Diego County Results Continued

Figure 40.
2005-2006 San Diego County Dry Weather Water Quality
Compared to the Two-Year Average (2003-2005)

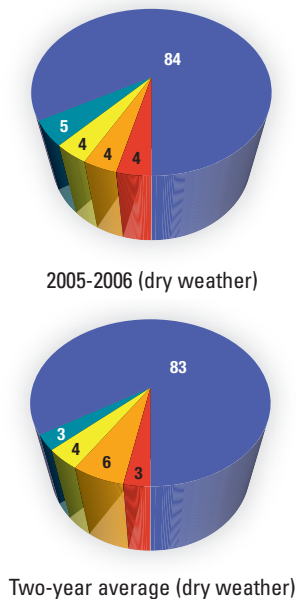
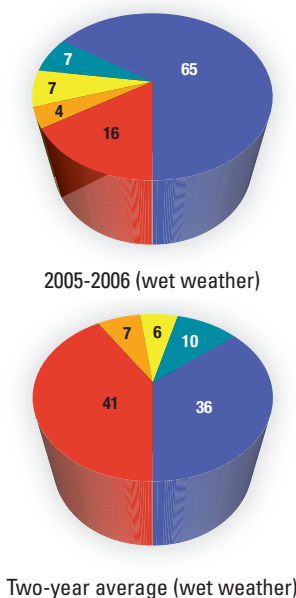


Figure 41.
2005-2006 San Diego County Wet Weather Water Quality
Compared to the Two-Year Average (2003-2005)



Key: A = A B = B C = C D = D F = F

of San Diego County's beaches showed very-good-to-excellent water quality during the summer dry weather time period (AB411); from San Onofre State Beach at San Onofre Creek all the way to Windansea Beach at Playa Del Norte and from Tourmaline surf park down to Imperial Beach. Most Mission and San Diego Bay locations were not monitored frequently enough to acquire a year-round grade. As with most enclosed water bodies, water quality varied greatly from beach to beach, making it difficult to recommend swimming locations. Compared to open ocean beaches, beaches located within enclosed bays tend to have reduced tidal circulation and are more susceptible to long-term pollution problems. However, some of these swimming spots that have had very good-to-excellent water quality during the AB411 time period for at least the last two years are: in Mission Bay (Ventura Cove, Fanuel Park, and Crown Point Shores) and in San Diego Bay (Silver Strand and Shoreline Beach Park).

There were 6 of 55 locations in San Diego County that received fair-to-poor water quality marks during the year-round dry weather time period. They were the San Luis Rey River outlet in Oceanside (C), the perennially problematic P.B. Point in Pacific Beach (C – improved from an F last year), Campland west of Rose Creek in Mission Bay, and the stretch of beach from Border Field State Park to the Tijuana Slough National Wildlife Refuge Shoreline at the Tijuana River mouth. These southernmost beaches continue to suffer from very poor water quality.

Most locations in San Diego showed a vast improvement in wet weather water quality from the extremely wet and polluted 2004–2005. Overall wet weather grades were well above the state average, with 73% of monitoring locations receiving A or B grades. Poor grades were earned at monitoring locations at the San Luis Rey River outlet (F) and Buccaneer Beach at Loma Alta Creek (F)

in Oceanside, San Dieguito River Beach in Del Mar (D), Campland west of Rose Creek in Mission Bay (F), and the stretch of beach from Carnation Avenue in Imperial Beach to Border Field State Park at the border fence. San Diego's southernmost beaches were again frequently closed to the public due to sewage contaminated runoff from the Tijuana Estuary.

Year-round dry weather water quality, in terms of grades by percent, were slightly above average this year in San Diego County. The two-year average for combined A and B grades by percentage was 86% compared to this year's results of 89% (Figures 40 and 41). Wet weather percentages were dramatically better than the past average, with 73% good-to-excellent grades this year compared to the rain soaked 46% for the previous two years (all previous year's grades were rerun with our new methodology).

Sewage Spill Summary

Like Orange County, San Diego County closures due to sewage spills returned to 2003–2004 levels after a massive increase in both the volume and number of sewage spills in 2004–2005 which were due to the extremely high rainfall during that year's winter season. There were 36 closures due to sewage spills between April 2005 and March 2006, with 13 spills of known volume releasing approximately 115,000 gallons of sewage to local beaches. Of the 13, there were three major spills ($\geq 10,000$ gallons) that accounted for 92% of the known sewage spill volume. The first major spill closed Carlsbad State Beach at Tamarack Avenue and the warm water jetty for two days in early April due to sanitary sewer overflow of 28,600 gallons. A line break (21,998 gallons) and a power failure (45,500 gallons) led to two separate closures at the Batiquitos Lagoon outlet in South Carlsbad State Beach in April and June 2005.

23 of the 36 beach closures were determined by model projections of sewage contaminated plumes from the Tijuana Estuary (see sidebar).

There were no volume amounts associated with these closures.

More on the Tijuana River Slough from San Diego County's Department of Environmental Health

When sewage contaminated flows in the Tijuana Estuary are moving north at the estuary mouth and impacting south county beaches, water quality at these impacted beaches continues to be poor. However, HTB grades may show an improvement in water quality at south county beaches for the winter of 2005/2006 because the extensive sampling effort conducted by DEH in the winter of 2004/2005 was not repeated this past winter. (So there is less bacterial monitoring data for these beaches compared to last winter.)

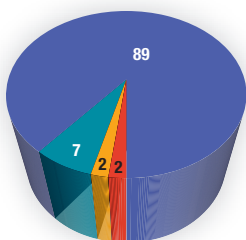
Scripps Institution of Oceanography analyzed previously collected monitoring data in correlation with San Diego Coastal Ocean Observing System (SDCOOS) hourly measured ocean currents to create a real time Tijuana River plume model. <http://sdcoos.ucsd.edu/data/particles/IB/> This 2 dimensional view makes it significantly easier to track the movement of the plume than the 1 dimensional real time data sets that were used prior to this. So far this model has shown good agreement with water quality measurements taken this spring. This use of this real time predictive model by DEH has alleviated the need for extensive bacterial monitoring of south county beaches, which produce results at least 24 hours after sample collection.

Beach Pollution Patterns

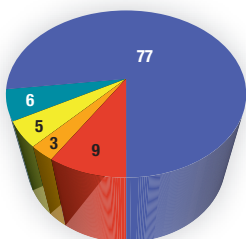
Once again, Heal the Bay analyzed the Southern California data (Santa Barbara to San Diego County) to determine differences in water quality based on beach type. Most Southern California beaches were divided into three categories: open ocean beaches; beaches adjacent to a creek, river, or storm drain (natural or concrete); and beaches located within enclosed waterbodies. The grades were analyzed for all three time periods: dry weather summer months (from April through October, the AB411 time period), dry weather year-round, and wet weather year-round. Figure 42 and 43 illustrate the grades by percent during dry weather for both AB411 (April through October) and year-round conditions.

Beach Pollution Patterns

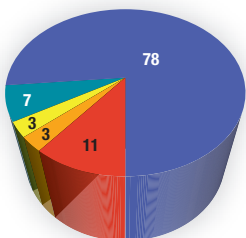
Figure 42.
Percent Grades by Beach Type from
April 2005 through October 2005 (AB411)



Open ocean beaches (57 beaches analyzed)



Storm drain impacted beaches (226 beaches analyzed)



Enclosed beaches (76 beaches analyzed)

Key: ■ = A ■ = B ■ = C ■ = D ■ = F

For the sixth year in a row this comparison demonstrates that water quality during dry weather at open ocean beaches is superior to water quality at enclosed and storm drain impacted beaches. For the first time



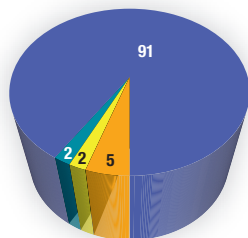
This photo of Avalon Harbor shows the type of barriers that impede water circulation at many enclosed beaches.

since Heal the Bay implemented this analysis by beach type, storm drain impacted beaches had comparable or poorer dry weather water quality than enclosed beaches. Approximately 13% of the enclosed beaches received fair-to-poor water quality grades during dry weather as opposed to 21% at storm drain impacted beaches and 7% at open ocean beaches. Although enclosed beaches appear safe and inviting to children, parents should research water quality conditions carefully before allowing their children to swim at these beaches.

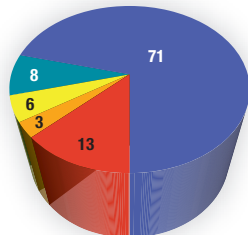
The disparity in water quality between beach types is seen more dramatically this year during wet weather (Figure 44). 84% of open ocean monitoring locations received good grades, compared to 52% at storm drain impacted locations, and only 11% at enclosed beaches.

Beach Pollution Patterns Continued

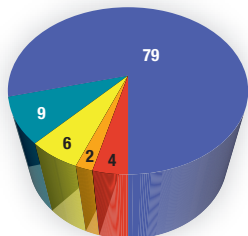
Figure 43.
Percent Grades by Beach Type During
Year-Round Dry Weather (2005-2006)



Open ocean beaches (43 beaches analyzed)

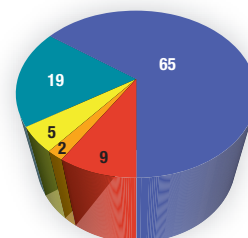


Storm drain impacted beaches (183 beaches analyzed)

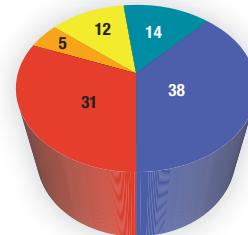


Enclosed beaches (47 beaches analyzed)

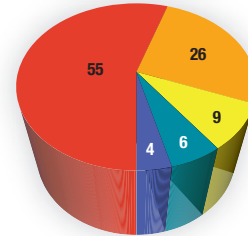
Figure 44.
Percent Grades by Beach Type
During Wet Weather



Open ocean beaches (43 beaches analyzed)



Storm drain impacted beaches (183 beaches analyzed)



Enclosed beaches (47 beaches analyzed)

Key: ■ = A ■ = B ■ = C ■ = D ■ = F

Recommendations for the Coming Year

Call for greater accountability and major reform at the Los Angeles County Department of Health Services

This agency is charged with protecting the public health of everyone in Los Angeles County. The agency has failed to adequately protect the health of millions of swimmers. The health department ignored over a year's worth of beach monitoring data, failing to even notify the public of beach pollution at any of the 14 new beaches monitored under the Santa Monica Bay beach bacteria Total Maximum Daily Load requirements. The health department never informed beach cities of the extent of their water quality problems, never posted the beaches and never released media advisories warning the public of potential health risks. Also, the health department never completed source identification or sanitary survey efforts at any of these beaches. In fact, we are unaware if they completed sanitary surveys on any polluted beaches in Los Angeles county.

The health department also has a history of failing to proactively respond to raw sewage spills. The health department did not respond immediately to the massive Manhattan Beach spill by monitoring beach water quality; instead relying on the discharger (Los Angeles County Sanitation Districts) to monitor the impacts of the spill. Manhattan Beach was opened prematurely, despite Heal the Bay's request to refrain from reopening the beach until the sand was proven to be fecal bacteria or pathogen free. The sand proved to be extremely contaminated with fecal bacteria from the 2 million gallon raw sewage spill. Two months later, although they received late notice from the city of Los Angeles, the health department failed to close any Santa Monica Bay beaches although the city of Los Angeles spilled an estimated 20,000 gallons of raw sewage to Ballona Creek.

Finally, the health department's record on monitoring and managing septic systems and on-site wastewater treatment systems continues to be inadequate. The health department does not require water quality performance standards for on-site systems, has no regular monitoring program, and has opposed State and Heal the Bay efforts to require tougher standards for systems directly adjacent or tributary to fecal bacteria and nutrient impaired waters. Regulatory compliance issues seem to focus almost exclusively on sewage daylighting issues. The health department does not even have maps of the locations and types of all on-site systems in the county.

All of these issues are critical to environmental public health. The public has the right to be informed in a timely manner on these issues, so they can make smart health risk management decisions. Heal the Bay requests that the Los Angeles County Board of Supervisors calls for a blue ribbon task force to provide recommendations for providing better public health protection to beachgoers from the Office of Environmental Health. Members of the task force should include beach cities, appropriate senior county staff, and members of the public.

Los Angeles Regional Water Quality Control Board should ensure compliance with the requirements of the Santa Monica Bay Beach bacteria TMDL

Every beach from Ventura County line south to Palos Verdes must meet state beach bacteria health standards 100% of the time by July 15th, 2006. The 100% compliance requirement is for the AB411 time period from April 1st to October 31st. That means that all beaches must be safe for swimming on all days for the seven months from April to October. Based on this year's Beach Report Card, it is clear that numerous beaches along Santa Monica Bay will not comply with the beach bacteria TMDL requirements for summer dry weather. Clearly, more needs to be done by appropriate public agencies to better protect the health of the more than 50 million visitors to Santa Monica Bay beaches. Heal the Bay urges the Regional Water Quality Control Board to ensure compliance with the TMDL requirements as soon as possible after the July 15th deadline.

The City of Malibu should create a watershed management utility as soon as possible.

Currently, the entire city has a \$16 million a year budget; a paltry amount for a city with such tremendous wealth and truly extraordinary coastal resources. A watershed management utility funded by Malibu residents would provide drinking water, prevent and reduce runoff pollution, and manage wastewater in the city. The utility would have the steady revenue necessary to manage these difficult water resource issues. The revenue could fund regular on-site wastewater treatment system inspections and monitoring, pay for a small wastewater reclamation and reuse system in the civic center and additional structural projects to reduce polluted runoff. Until Malibu generates an independent source of revenue to manage water supply and water quality issues, the city will continue to have chronic beach and creek water quality problems.

All Beaches should be monitored at Point Zero

Los Angeles County is one of the first in the state to modify their monitoring program to collect samples directly in front of flowing storm drains and creeks. This change was as a result of the Santa Monica Bay beach bacteria TMDL. Children play directly in front of stormdrains and some kids even play in the runoff filled ponds and lagoons. Monitoring at "point zero" is the most protective way to ensure the health risks to swimmers are minimized.

Continue Advocating for Year-Round Postings at Beaches with Flowing Storm Drains.

In Southern California, there is little consistency among counties monitoring storm drain impacted beaches on where to collect a sample, when to post a warning sign, and where to post the warning sign. For example, counties will collect water samples from the wave wash (where the creek, river, or storm drain meet the ocean water) to as far as 83 yards from the drain, and anywhere in between. State regulations require posting a beach when a water sample exceeds the single sample standard. The State gives local health departments discretion to post a beach if the 30-day geometric mean standard is exceeded. Using both the single sample and 30-day geometric

mean standards are far more protective of public health than using one standard. For example, the counties of Santa Barbara, Ventura, and Los Angeles and the City of Long Beach will only post a beach if there is a single sample exceedance; the County of Orange will post a beach on either a single sample or 30-day geometric mean exceedance; and the County of San Diego will initially only post a beach on a single sample exceedance but will continue that posting if subsequent sampling causes an exceedance of either the single sample or 30-day geometric mean standard. Where to post the warning sign is subject to the location of sample collection and therefore highly variable.

Heal the Bay recommends permanently posting warning signs along the entire length of beach adjacent to flowing storm drains where water quality may fail to meet the State health standards for both the single sample and 30-day geometric mean. This recommendation is based on the results of the Storm Drain Plume Dispersion study Heal the Bay completed with the Southern California Coastal Water Research Project, and represents a change from the current posting protocol implemented by health agencies. The study investigated how the dispersion of fecal bacteria discharged from storm drains into Santa Monica Bay is affected by ocean and discharge conditions. The results of this study demonstrate that the length of beach unsafe for swimming is beach-specific depending on numerous factors including local beach topography, and can vary over the course of a few hours. The study results also indicate that exceedances of the health standards can occur along the beach at distances much greater than the distance covered by monitoring stations routinely sampled by local health agencies. Based on these results, Heal the Bay believes the protocol typically used by County health agencies for posting warning signs may not be adequately notifying swimmers of potential health risks around freshwater outlets in Southern California.

We have the following three sequential recommendations to improve the current system of warning the beach-going public that water quality may exceed State health standards:

1. The beach adjacent to a polluted storm drain or freshwater outlet should be posted with warning signs over the entire length of beach where water quality is affected by the plume of fecal bacteria discharging from the drain.
2. Since the length of beach where water quality may be impacted by high fecal bacteria levels is beach-specific, we recommend this length be determined by completing multiple sampling events at multiple locations around the drain under varying oceanographic conditions.
3. Routine monitoring should be conducted to make sure the length of beach impacted by the drain is posted with warning signs so that swimmers can identify which portion of the beach may not be safe for swimming. Under the current system, signs may be posted only directly in front of a drain, even though unsafe water quality conditions may persist 100 yards or more from the drain.

Advocate for increased funding for California's shoreline monitoring program from EPA's BEACH program

State allotments are based on three criteria: the length of the beach season, the amount of beach miles, and estimated beachgoers. Although California received one of the largest grants for this program, the allotment criteria used by EPA has two shortcomings that have prevented California from receiving additional funds to cover the cost of monitoring. The first problem with the allotment methodology is the lack of criteria for strength of monitoring program or public notification. EPA does not provide an incentive or disincentive to move states beyond baseline water quality monitoring and public notification program. For example, states may monitor for only one fecal indicator or may choose to not notify the public about water quality exceedances in a timely manner, yet those states will continue to receive full funding compared to states, such as California, which monitor for three fecal criteria, and notify the public immediately of any water quality exceedances. The EPA needs to provide greater proportional funding to those states that implement the aforementioned model program in order to provide an incentive for improving public health protection. The second problem with the allotment methodology is that it is inherently subjective, and the EPA has no mechanism to confirm that its methodology is truly ensuring funds are going to the most appropriate states. Because these shortcomings have yet to be addressed by EPA, many of California's coastal counties receive less money to implement water quality monitoring programs. This means that counties have to reduce the number of locations sampled or reduce the time-period of coverage.

Continue Advocating for the implementation of a Statewide Comprehensive Stormwater Monitoring Program (SB72)

SB72 (2001 Kuehl) (Cal. Water Code Section 13383.5) was sponsored by Heal the Bay. This law standardizes stormwater monitoring. A uniform and comprehensive monitoring program is critical to the success of the State's stormwater programs. Currently, every county or municipality covered under the municipal stormwater permit requirements has different monitoring programs. This is the reason why a status and trends analysis of stormwater in the state cannot be completed. The data are not comparable from permittee program to permittee program, and often not even from year to year. SB72 also clarifies what information to consider when determining which constituents should be monitored in municipal runoff. This law set clear and specific minimum requirements for municipalities and industries for sampling:

- 1) Standardized methods for collection of storm water samples
- 2) Standardized methods for analysis of storm water samples;
- 3) Requirement that sample analysis be completed by a state certified laboratory;
- 4) Standardized reporting format;
- 5) Standard Quality Assurance and Quality Control programs;
- 6) Minimum detection limits.

Cal. Water Code Section 13383.5 required that the above requirements be addressed by January, 2003, which was over three years ago. To date, a technical working group has only provided partial recommendations for the municipal stormwater program requirements of SB72, and the State has done nothing to set up a similar process for industrial stormwater. The SWRCB still has the opportunity to add SB72 standardization requirements in to the General Industrial Stormwater Permit, but the draft did not include meaningful requirements. Currently, the State has failed to comply with SB72 requirements.

The State Water Board must release final AB885 regulations

The State Water Resources Control Board (SWRCB) is completing an Environmental Impact Report on the final draft AB885 regulations. The document should be completed and released this summer. The law required for the SWRCB to set final regulations for siting, monitoring and water treatment performance for California's on-site water treatment systems (OWTS) by January of 2004. The regulatory process has been extremely controversial and incredibly slow. Lobbying efforts by county health departments and others led to a major weakening of the draft regulations. One of our greatest concerns is that the regulations do not require on-site system upgrades for all systems within 600 feet of fecal bacteria and nutrient impaired waters or tributaries upstream of the impaired waters. The draft regulations do not apply to tributaries that cause or contribute to fecal bacteria and/or nutrient impairment problems downstream. The draft regulations were also weakened in the area of monitoring and performance standards. Although these regulations would apply throughout the state, they will have special importance at California beaches and coastal watersheds that are impaired for fecal bacteria. Based on the SWRCB's continual backsliding on the proposed regulations, Heal the Bay is extremely concerned that the last five years of negotiations and debate on AB885 regulations will not result in improved water quality and reduced public health risks.

Continue advocating for cleaning up California's enclosed beaches

On August 17th and 18th, 2005, over 100 water quality experts, beach managers, and regulators attended the Clean Beach Initiative (CBI) Enclosed Beach Symposium & Workshop, organized by Heal the Bay and UC Davis and funded by the State Water Resources Control Board (SWRCB) through their California Clean Beaches Initiative. Some of California's most chronically polluted beaches are those located in enclosed bays. Ironically, enclosed beaches are also some of California's most popular beaches because they offer warm, gentle waves and a plethora of amenities such as boating, playgrounds, and educational facilities. The workshop successfully brought together the State's foremost water quality experts, enclosed beach managers and regulators to identify and evaluate the most promising solutions to the poor water quality problems at California's enclosed beaches, with a focus on facilitating the funding of enclosed beach projects through the SWRCB's CBI program.

Recommendations coming from the Clean Beach Initiative Enclosed Beach Symposium & Workshop:

■ **Improve the State's funding process** through the Clean Beach Initiative so more Proposition 50 funding can be used for enclosed beach water quality improvement projects:

- extend timelines to allow for adequate planning of complex projects
- earmark a limited amount of funding for feasibility studies that are especially critical for enclosed beaches that require innovative projects because traditional mitigation approaches developed for open coastal beaches are not effective at these beaches
- make allowances for adaptive management because innovative projects require flexible implementation

■ **Improve Communication** between project proponents, the SWRCB and the Clean Beach Task Force (a technical advisory board) by creating a pre-proposal review, provide a mechanism for selected CBTF members (or other experts), to play an active liaison and advisory role on specific projects, increase communication methods such as starting, and increase communication opportunities through web pages, email list serves and periodic workshops and symposiums.

■ **Encourage applications for state funding from cities and counties that have responsibility for high priority beaches**

■ **Promote scientific study** in critical areas of uncertainty including the role of sediment and wrack on poor water quality, methods for improving water circulation at very shallow swimming depths, methods for measuring indicator bacteria rapidly, and improved protocols and methods for source identification.

Complete a Large Scale Epidemiology Study on swimmers in runoff contaminated waters using a wide variety of microbial indicators.

To date, there has still only been one large scale health effects study on swimmers near flowing stormdrains. Also, past health effects studies have largely focused on fecal bacteria indicators using slow, outdated methods rather than rapid methods and methods to detect human pathogens. A new study is needed that assesses the association between the densities of these new rapid indicators and viruses to the incidence of adverse health effects in swimmers.

Continue to encourage monitoring agencies to monitor water quality at popular beaches year-round (beyond the AB411 required dates of April-October).

Year-round monitoring provides winter beachgoers, oftentimes surfers who frequent the beach for winter swells, with important information about water quality. In California there is no set beach season. Surfers, swimmers, divers, wind-surfers, and kayakers use the water year-round, so all of these ocean enthusiasts have the right to know about water quality at their favorite beaches on a year-round basis.

Continue to advocate for the State to enforce Sanitary Survey Protocol requirements as established in AB538 and the California Ocean Plan.

In an effort to do more than just notify beachgoers of potential water quality problems at their favorite beaches per AB411, AB538 was passed to require sanitary surveys (source investigations) to be completed at those beaches where water quality problems persisted. The idea was to identify the sources causing beach water quality impairment, and implement necessary strategies to abate the pollution source. The requirement of a source investigation was not a new concept created by AB538 in 1999 – the Ocean Plan has required this procedure since 1988. Currently, the State does not enforce or require municipalities to implement these surveys when exceedances occur. The Ocean Plan states that “... if a shore station consistently exceeds a coliform objective or exceeds a geometric mean ... the Regional Board shall require the appropriate agency to conduct a survey to determine if that agency’s discharge is the source of the contamination.” (State Water Resources Control Board Ocean Plan 1997)

AB538 states that source investigations shall be conducted “if bacteriological standards are exceeded in any three weeks of a four-week period, or, for areas where testing is done more than once a week, 75 percent of testing days that produce an exceedence of those standards.” Although there have been a number of source identification efforts for chronically polluted beaches throughout the state, many chronically polluted beaches have never been investigated. Examples of completed sanitary surveys are Mission Bay, Huntington Beach, Rincon, Campbell Cove, Baby Beach, Kiddie Beach, Malibu Lagoon, Santa Monica Canyon, Cabrillo Beach, Avalon, and a few other locations. However, source identification efforts are sorely needed at Santa Monica and Redondo Piers, Topanga Beach, Santa Ynez and Castlerock stormdrains, Escondido, Paradise Cove, Latigo and Solstice, Marie Canyon, Doheny, Pillar Point Harbor and Frenchman’s Creek in San Mateo County, Cowell Beach in Santa Cruz, and Baker Beach at Lobos Creek in the San Francisco area. Identifying sources of fecal bacteria pollution are critical before successful source abatement efforts can be undertaken.

Acknowledgements

This report and the entire Beach Report Card program would not be possible without the cooperation of the many monitoring and public agencies throughout California. These agencies include: Humboldt County Environmental Health Division; Mendocino County Environmental Health Department; Sonoma County Environmental Health Division; Marin County Environmental Health Services; San Francisco County Public Health Department; San Francisco Public Utilities Commission; San Mateo County Environmental Health Division; Santa Cruz County Environmental Health Services; Monterey County Environmental Health Division; San Luis Obispo County Environmental Health Services; Santa Barbara County Environmental Health Services; Ventura County Environmental Health Division; City of Los Angeles Environmental Monitoring Division; the Los Angeles County Sanitation Districts; the Los Angeles County Department of Health Services; the City of Long Beach Department of Health and Human Services Environmental Health Division; South Orange County Wastewater Authority; County of Orange Environmental Health; Orange County Sanitation District; San Diego County Department of Environmental Health Land and Water Quality Division; the Southern California Coastal Water Research Project; and the State Water Resources Control Board.

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Appendix A

Heal the Bay's Annual Beach Report Card Methodology

For the fourth time in the 16 year history of the program, Heal the Bay has modified its Beach Report Card grading methodology to better characterize local beach water quality. Amendments to the grading methodology include: 1) the inclusion of the geometric mean into the calculation, 2) a firm zero to 100 point scale, 3) greater significance given to the most recent sample(s) relative to past samples, and 4) greater weight for enterococcus and the total to fecal ratio relative to total coliform and fecal coliform. These modifications stem from comments made by California's State Water Resources Control Board and the Beach Water Quality Workgroup. With these improvements to the methodology, Heal the Bay's Beach Report Card grading system is now endorsed by the State Water Resources Control Board and the Beach Water Quality Workgroup as an effective way to communicate beach water quality to the public.

Note: The Annual and End of Summer Beach Report Card methodology is modified slightly to accommodate the longer time period. (for example: No greater significance is given to the most recent samples)

The new methodology retains past modifications to the report card, such as the inclusion of new indicator bacteria thresholds, namely the total to fecal ratio, developed by the Santa Monica Bay Restoration Commission¹ in the 1996 health effects studies of Santa Monica Bay beachgoers; and the implementation of standard deviations for each indicator bacteria threshold developed by the Southern California Coastal Waters Research Project and Orange County Sanitation Districts during the 1998 Southern California Bight Study². Each threshold is based on the prescribed standards set in the California Department Health Service's Beach Bathing Water Standards³.

As seen in Table 1, the new methodology continues to use a standard A through F grading system, and grades are now based on the following formula:

$$\% \text{ Grade} = \frac{\text{'Total Points Available'} - \text{'Total Points Lost'}}{\text{'Total Points Available'}}$$

'Total Points Available' is derived from adding together two point components (if applicable): the Geometric Mean and the Single Sample Standard. The points for each component are listed in Table 2. In order for the points in each component to become available, certain criteria must be met. For example, the geometric mean points will be added to the 'Total Points Available' only

Table 1

Grade	Points
A	90-100%
B	80-89%
C	70-79%
D	60-69%
F	≤59%

Table 2

'Total Points Available' by Component	
Geometric Mean	29 points
Single Sample Standard	71 points
Total	100 points

if there are a minimum of 4 dry weather samples collected within the allotted time frame (for the Annual Report Card, this is April 2005–March 2006). Wet weather data is graded separately from dry weather data, and does not include a geometric mean component. Therefore, it is possible for ‘Total Points Available’ to be less than 100. The new grading methodology allows for a relative grade to be determined based on the actual monitoring completed.

Once the ‘Total Available Points’ has been determined for a specific location, then the ‘Total Points Lost’ can be calculated for the applicable grade components.

‘Total Points Lost’

Separate calculations are used to quantify ‘Total Points Lost’ for each applicable component from the ‘Total Available Points’. The following describes the two calculations.

Geometric Mean

Calculating the ‘Total Points Lost’ for the Geometric Mean component involves using California’s Beach Bathing Standards for the geometric mean. The standards for each of these criteria are presented in Table 3. Each geometric mean criterion exceeded for the time frame is assigned a specific percentage of points lost. Non-exceedances are given 0%. The percentage of points lost from each of the three criteria are then added together and multiplied by the ‘Total Available Points’ (any sum of percentages exceeding 100% automatically loses all 29 points available in the geometric mean component). If the number of ‘Total Points Lost’ is less than 29, then the frequency of the sample location’s exceedances of the 30-day geometric mean throughout the timeframe is taken into consideration. If a given location exceeded any state 30-day geometric mean standard more than 20% of sample days, then an additional 10 points are lost for the geometric mean component (up to but not to exceed 29 total points). If the location exceeded any state 30-day geometric mean standard for more than 40% of sample days, then another 10 points are lost for the geometric mean component (up to but not to exceed 29 total points). If the location exceeds any state 30-day geometric mean standard for more than 50% of samples days, then the location automatically loses all 29 points available for the geometric mean component.

Table 3: Calculating the Total Points Lost for the Geometric Mean Component

Indicator Exceeded	California Beach Bathing Water Standard*	% of Total Available Points Lost** Due to Exceedance	Total Available Points
Enterococcus	35	80%	29
Fecal Coliform	200	40%	
Total Coliform	1,000	40%	

* Colony forming units per 100 milliliters of ocean water

** Total Percentage Points Lost cannot add up to be > 1

Single Sample Standard

Calculating the ‘Total Points Lost’ for the Single Sample Standard component is similar to the calculation used for deriving the points lost for the Geometric Mean. However, the Single Sample Standard component uses a gradient to calculate the ‘Total Points Lost’. The gradient of percentage points lost used in calculating the number of points lost is derived from work completed by the Southern California Coastal Water Research Project and Orange County Sanitation District as part of the 1998 Southern California Coastal Bight Study (see Table 4).

Table 4: Single Sample Gradient Thresholds in cfu/100ml*

Indicator Bacteria	Slight T - 1 s.d.**	Moderate T + 1 s.d.	High > T + 1 s.d.	Extreme very high risk
Total Coliform	6,711-9,999	10,000*** -14,900	>14,900	na
Fecal Coliform	268-399	400 -596	>596	na
Enterococcus	70-103	104 -155	>155	na
Total: Fecal Ratio (when Total ≥ 1,000)	10.1-13	7.1-10	2.1-7	< 2.1

* colony forming units per 100 milliliters of ocean water

** standard deviation

*** **Bold numbers** are the California State Health Department standards for a single sample

na – not applicable

‘Percentage of points lost’ is allocated depending upon the threshold exceeded by each of the four criteria. Each single sample criterion exceeded is given a ‘percentage of points lost’. These amounts are presented in Table 5. Non-exceedances are given zero 0%. The ‘percentage of points lost’ from each of the four criteria for each sample during the time period are added together and divided by the total number of samples. Once this number is calculated (total ‘percentage of points lost’ divided by total number of samples), it is multiplied by the ‘Total Available Points’. In the Single Sample Standard component, more points are lost as the magnitude or frequency of exceedances increases.

Table 5: Calculating the Total Points Lost for the Single Sample Standard Component

Indicator Exceeded	Slight % Points Lost	Moderate % Points Lost	High % Points Lost	Extreme % Points Lost	Total Available Points*
Total Coliform	10%	30%	40%	na	71 points
Fecal Coliform	10%	30%	40%	na	
Enterococcus	20%	40%	60%	na	
Ratio (when Total ≥ 1,000)	25%	50%	75%	100%	

Points lost from the Single Sample Standard component are added to the points lost in the Geometric Mean component (if applicable) and this sum becomes 'Total Points Lost' Once the 'Total Points Available' and the 'Total Points Lost' are calculated, a grade for a particular sample site can be determined.

Determining a Grade

$$\% \text{ Grade} = \frac{\text{Total Points Available} - \text{Total Points Lost}}{\text{Total Points Available}}$$

Most dry and wet weather Annual grades are calculated with 100 'Total Available Points', although there is no Geometric Mean component for wet-weather grading. Wet weather grades are calculated by the total 'percentage of points lost' divided by the total number of samples and then multiplied by 100. This gives the location's score for wet weather 'Total Points Lost'. This number is then subtracted from 100 to give the % grade.

Appendix B

2005-2006 Beach Report Card Grades By County

Humboldt County	AB411 (April – Oct.)	Dry Year-round	Wet Year-round
Trinidad State Beach near Mill Creek	A	A	A
Luffenholtz Beach near Luffenholtz Creek	A	A	A
Moonstone County Park (Little River State Beach)	A	A	B
Clam Beach County Park near Strawberry Creek	A	A	A
Mad River Mouth (north)	A+	A+	C

Mendocino County	AB411 (April – Oct.)	Dry Year-round	Wet Year-round
MacKerricher State Park at Virgin Creek	A+		
Pudding Creek Ocean Outlet	A		
Big River near PCH	A+		
Van Damme State Park at the Little River	A+		

Sonoma County	AB411 (April – Oct.)	Dry Year-round	Wet Year-round
Gualala Regional Park Beach	A+		
Black Point Beach	A+		
Stillwater Cove Regional Park Beach	A+		
Goat Rock State Park Beach	A+		
Salmon Creek State Park Beach	A		
Campbell Cove State Park Beach	D	F	F
Doran Regional Park Beach	A		

County “Beach Bummers” names appear in **bold**.

Marin County	AB411 (April – Oct.)	Dry Year-round	Wet Year-round
Dillon Beach	A+		
Lawson's Landing	B		
Miller Point	B		
Heart's Desire	A+		
Shell Beach	A		
Chicken Ranch Beach at Creek	A		
Golden Hinde	D		
Millerton Point	B		
Bolinas Beach (Wharf Rd)	A		
Stinson Beach, North	A+		
Stinson Beach, Central	A		
Stinson Beach, South	A		
Muir Beach, North	D		
Muir Beach, Central	A		
Muir Beach, South	A		
Rodeo Beach, North	A+		
Rodeo Beach, Central	A+		
Rodeo Beach, South	A+		
Baker Beach, Horseshoe Cove SW	A		
Baker Beach, Horseshoe Cove NW	A		
Baker Beach, Horseshoe Cove NE	A+		
Schoonmaker Beach	A		
Paradise Cove	A		
China Camp	D		
McNears Beach	D		
Aquatic Park Beach, Hyde St. Pier (proj. of Larkin St.)	A+	A+	B
Aquatic Park Beach, 211 Station	A	A	C
Crissy Field Beach East, 202.4 Station	A	A	F

County "Beach Bummers" names appear in **bold**.

San Francisco County	AB411 (April – Oct.)	Dry Year-round	Wet Year-round
Crissy Field Beach West, 202.2 Station	A	A	B
Baker Beach East, Ocean #15East	A	A	B
Baker Beach, Lobos Creek	F	F	C
Baker Beach West, Ocean #16	A+	A	B
China Beach, end of Sea Cliff Ave.	A+	A+	B
Ocean Beach, projection of Balboa Ave.	A+	A	C
Ocean Beach, projection of Lincoln Way	A+	A+	F
Ocean Beach, projection of Sloat Blvd.	A	A	C
Candlestick Point, Jackrabbit Beach	A+	A	C
Candlestick Point, Windsurfer Circle	B	D	F
Candlestick Point, Sunnydale Cove	A	A	F

County “Beach Bummers” names appear in **bold**.

San Mateo County	AB411 (April – Oct.)	Dry Year-round	Wet Year-round
Sharp Park Beach, projection of San Jose Av.	A+	A	A+
Sharp Park Beach, projection of Birch Ln.	A+	A+	A+
Rockaway Beach at Calera Creek	A+	A+	A+
Linda Mar Beach, projection of Crespi Dr.	A+	A+	A
Linda Mar Beach at San Pedro Creek	A+	A+	D
Gray Whale Cove	A+	A+	A+
Montara State Beach, at Martini Creek	A+	A+	A
Fitzgerald Marine Reserve at San Vicente Creek	A	A	B
Pillar Point #8	A+	A+	F
Pillar Point Harbor, end of Westpoint Ave.(# 7)	A	A	F
Pillar Point Harbor, Capistrano Ave Beach (# 5)	F	F	F
Surfer's Beach, southend of riprap	A+	A+	B
Roosevelt Beach, south end of parking lot	A+	A+	B
Dunes Beach	A+	A+	B
Venice Beach at Frenchman's Creek	F	F	F
Francis Beach at the foot of the steps	A+	A+	A
San Gregorio State Beach at San Gregorio Creek	A	A	B
Pomponio State Beach at Pomponio Creek	A+	A+	A
Pescadero State Beach at Pescadero Creek	A	A	B
Bean Hollow State Beach	A+	A+	A+
Gazos Beach at Gazos Creek	A	A	A

County "Beach Bummers" names appear in **bold**.

Santa Cruz County	AB411 (April – Oct.)	Dry Year-round	Wet Year-round
Natural Bridges State Beach	A+	A+	A
Cowell Beach at the Stairs	A	A	A
Cowell Beach, west of the wharf	D	C	A
Santa Cruz Main Beach, at the Boardwalk	A	A	A
Santa Cruz Main Beach, at the San Lorenzo River	A	A	B
Seabright Beach	A+	A+	A
Twin Lakes Beach	A	A	A
Capitola Beach, west of the jetty	C	C	C
Capitola Beach, east of the jetty	A	A	B
New Brighton Beach	A+	A+	A
Seacliff State Beach	A+	A+	A
Rio Del Mar Beach	A	A	B
Palm/Pajaro Dunes Beach	A+	A+	B

County “Beach Bumpers” names appear in **bold**.

Monterey County	AB411 (April – Oct.)	Dry Year-round	Wet Year-round
Monterey Beach Hotel, downcoast of Robert's Lake outlet	A+		
Monterey Municipal Beach (at the commercial wharf)	A		
San Carlos Beach at San Carlos Beach Park	A+		
Lover's Point Park, projection of 16th Street	A		
Asilomar State Beach, projection of Arena Av.	A		
Spanish Bay (Moss Beach), end of 17 mile drive	A		
Stillwater Cove, at Beach and Tennis Club	A		
Carmel City Beach, projection of Ocean Ave. (west end)	A+		

San Luis Obispo County	AB411 (April – Oct.)	Dry Year-round	Wet Year-round
Hearst State Beach west of pier		A	B
Hearst State Beach east of pier		A+	B
Pico Ave., San Simeon		A	B
Cayucos State Beach, half-way between Cayucos Creek and Pier	A	A	F
Cayucos State Beach, downcoast of the pier	A	A	C
Studio Drive parking lot near Old Creek	A	A	B
Morro Strand State Beach, projection of Beachcomber Dr.	A+	A+	B
Morro Bay City Beach, projection of Atascadero	A	A	B
Morro Bay City Beach, Morro Creek (south side)	A	A	C
Morro Bay City Beach, 75 feet north of main parking lot	A+	A+	A
Hazard Canyon, Montana De Oro State Park	A+	A	A
Olde Port Beach (Harford Beach)north	A	A	D
Olde Port Beach (Harford Beach)south	A	A	D
Avila Beach, projection of San Juan Street	A	A	B
Avila Beach, projection of San Luis Street	A	A	C
Sewers at Silver Shoals Dr.	A	A	A
Spyglass Dr. near Spyglass Park	A	A	B
Pismo Beach, projection of Wadsworth Street	A	A	B
Pismo Beach Pier, 50 feet south of the pier	B	A	D
Pismo Beach, projection of Ocean View	A+	A+	C
Pismo State Beach, 330 yards no. of Pier Av.	A+	A+	B
Pismo State Beach, projection of Pier Av.	A+	A+	B
Pismo State Beach, projection of Sandpiper Lane	A+	A+	B

Santa Barbara County	AB411 (April – Oct.)	Dry Year-round	Wet Year-round
Guadalupe Dunes	A+	A	A
Ocean Beach	A	A	B
Jalama Beach	C	C	C
Gaviota State Beach	B	B	B
Arroyo Quemada	A		
Refugio State Beach	A	A	B
El Capitan State Beach	B	B	A
Haskell's Beach (btwn. Tecolote and Winchester Cyn Creeks)	B	A	C
Sands at Coal Oil Point	A	A	A+
Goleta Beach	B	B	A+
Hope Ranch Beach	A	A	A
Arroyo Burro Beach	F	D	C
Leadbetter Beach	A	A	B
East Beach at Mission Creek	D	D	D
East Beach at Sycamore Creek	A	B	C
Butterfly Beach	A	A	B
Hammond's Beach	A	A	A
Carpinteria City Beach	A	A	A
Carpinteria State Beach	A	A	D
Rincon Beach at creek mouth	A+	A+	A+

County "Beach Bummers" names appear in **bold**.

Ventura County	AB411 (April – Oct.)	Dry Year-round	Wet Year-round
Rincon Beach, 25 yds. so. of the creek mouth	B		
Rincon Beach – 100 yds. so. of the creek mouth	A	A	A
Rincon Beach – at the end of the footpath	A+		
La Conchita Beach, 50 yds. so. of the drain, Ocean View Rd.	A+		
Mussel Shoals Beach, south the drain	A+		
Oil Piers Beach, south of the drain, bottom of the wood staircase	A+		
Hobson County Park, base of stairs to the beach	A+		
Rincon Parkway North, near camp space #14	A+		
Faria County Park, south of drain at no. end of park	A+		
Mandos Cove, south of drain	A	A	A
Solimar Beach – north (south of drain at the base of cypress tree)	A+		
Solimar Beach – south (end of east gate access road)	A		
Emma Wood State Beach (50 yards S. of first drain)	A+	A	A+
Seaside Wilderness Park (400 yards N. of Ventura River)	A+		
Surfer's Point at Seaside (End of access path via wooden gate)	A+	A+	A
Promenade Park – Figueroa St.	A+	A+	A
Promenade Park – Redwood Apts.	A+		
Promenade Park – Oak Street	A+		
Promenade Park – Holiday Inn, south of drain at California St.	A+		
San Buenaventura Beach – south of drain at Kalorama St.	A		
San Buenaventura Beach – south of drain at San Jon Rd.	C		
San Buenaventura Beach – south of drain at Dover Ln.	A+		
San Buenaventura Beach – south of drain at Weymouth Ln.	A		
Marina Park (Beach at N. end of playground)	A+		
Peninsula Beach (Beach area N. of South Jetty)	A	A	B
South Jetty (Beach area S. of the jetty)	A		
Surfer's Knoll (Beach adjacent to parking lot)	B	A	A
McGrath State Beach (½ mile N. of Gonzales Rd.)	A		
McGrath State Beach – Gonzales Rd.	A		

Ventura County (continued)	AB411 (April – Oct.)	Dry Year-round	Wet Year-round
McGrath State Beach (South end of McGrath Lake)	A		
Oxnard Beach – 5th Street (south of drain)	A+		
Oxnard Beach – Channel Way (south of drain)	A+		
Oxnard Beach – Outrigger Way (south of drain)	A+		
Oxnard Beach – Amalfi Way (south of drain)	A+		
Oxnard Beach Park – Falkirk Ave. (south of drain)	A+		
Oxnard Beach Park – Starfish Dr. (south of drain)	A		
Hollywood Beach – La Crescenta St. (south of drain)	A+	A+	A
Hollywood Beach – Los Robles St. (south of drain)	A		
C.I. Harbor – Hobie Beach Lakshore Dr.	A		
C. I. Harbor – Beach Park at S. end of Victoria Av., 50' north	A		
C. I. Harbor – Beach Park at S. end of Victoria Av.	A	A	A
C. I. Harbor – Beach Park at S. end of Victoria Av., 50' south	A		
C.I. Harbor – Beach Park at the end of Rocks	A		
Silverstrand – San Nicholas Ave. (south of jetty)	A	A	B
Silverstrand – Santa Paula Dr. (south of drain)	A		
Silverstrand – Sawtelle Ave. (south of drain)	A+		
Port Hueneme Beach Park, 50 yds. no. of the Pier	A		
Ormond Beach – J Street drain, 50 yds. so. of the drain	A+		
Ormond Beach – Oxnard Industrial drain, 50 yds. no. of the drain	A		
Ormond Beach – Arnold Rd.	A+		
Point Mugu Beach, adjacent to parking lot entry	A+		
Thornhill Broome Beach, adjacent to parking lot entry	A+		
Sycamore Cove Beach, 50 yds. so. of the creek mouth	A+		
Deer Creek, 50 yds. so. of the creek mouth	A+		
County Line Beach, 50 yds. so. of the creek mouth	A	A	A
Staircase Beach, bottom of staircase	A+		

Los Angeles County	AB411 (April – Oct.)	Dry Year-round	Wet Year-round
Leo Carrillo Beach, at 35000 PCH	C	B	B
Nicholas Beach – 100 feet west of lifeguard tower	A	A	A
El Pescador State Beach, between Lachusa and Los Aliso creeks	A+	A+	A
Encinal Canyon at El Matador State Beach	A+	A+	A+
Trancas Beach entrance	A	A	B
Zuma Creek	D	C	B
Walnut Creek, projection of Wildlife Rd. (private)	A	C	F
Paradise Cove, adjacent to westside of Pier	F	F	F
Escondido Creek, just east of Escondido State Beach	F	F	F
Latigo Canyon Creek entrance	F	F	C
Solstice Canyon at Dan Blocker County Beach	F	F	F
Puerco Beach	B	B	A
Marie Canyon storm drain at Puerco Beach, at 24572 Malibu Rd.	F	F	F
Malibu Point	C	C	D
Surfrider Beach (breach point) – daily	F	F	F
Malibu Pier – 50 yards east	C	B	D
Sweetwater Canyon at Carbon Beach	F	D	F
Las Flores State Beach, at Las Flores Creek	F	C	F
Big Rock Beach, at 19948 PCH	A	C	B
Pena Creek at Las Tunas County Beach	A	A	A+
Tuna Canyon	F	F	A
Topanga State Beach	F	F	F
Castlerock Storm Drain at Castle Rock Beach	F	F	F
Santa Ynez Storm Drain at Castle Rock Beach	F	F	F
Will Rogers State Beach at 17200 PCH (¼ mile east of Sunset drain)	A	A	B
16801 PCH, Bel Air Bay Club (chain fence)	B	D	F
Pulga Canyon storm drain	F	F	F
Will Rogers State Beach – Temescal Canyon	C	F	C
Santa Monica Canyon, Will Rogers State Beach	F	F	F

County “Beach Bummers” names appear in **bold**.

Los Angeles County (continued)	AB411 (April – Oct.)	Dry Year-round	Wet Year-round
Santa Monica at Montana Ave.	A	A	B
Santa Monica projection of Wilshire Blvd.	A	A	B
Santa Monica Municipal Pier	F	F	F
Santa Monica Beach at Pico/Kenter storm drain	C	C	F
Santa Monica Beach at Strand St. (in front of restrooms)	A	A	B
Ashland Ave. storm drain	A	A	D
Venice City Beach, at the Rose Ave. storm drain	A	A	F
Venice City Beach at Brooks Ave. (in front of drain)	A	A	A
Venice City Beach at Windward Ave.	A	A	C
Venice Fishing Pier – 50 yards south	A	A	A
Venice City Beach at Topsail St.	B	B	C
Marina del Rey, Mothers' Beach – lifeguard tower	A	A	F
Ballona Creek entrance	F	F	F
Dockweiler State Beach at Culver Blvd.	A	A	F
North Westchester Storm Drain at Dockweiler State Beach	A+	A+	C
Dockweiler State Beach – south of D&W jetty	A	A	A
Imperial HWY storm drain	A	A	F
Hyperion Treatment Plant One Mile Outfall	A	A	A
Dockweiler State Beach at Grand Ave. (in front of drain)	A	A	A
Manhattan State Beach at 40th Street	A	A	C
Manhattan Bch., projection of 28th Street (in front of drain)	A	B	F
Manhattan Beach Pier	A	A	B
Hermosa City Beach at 26th St.	A+	A+	A+
Hermosa Beach Pier – 50 yards south	A	A	C
Herondo Street storm drain	A	A	F
Redondo Municipal Pier - 50 yards south	F	F	D
Redondo State Bch at Topaz St. – north of jetty	A	A	A
Redondo State Beach at Avenue I	A	A	F
Malaga Cove, Palos Verdes Estates – daily	A	A	B

County "Beach Bummers" names appear in **bold**.

Los Angeles County (continued)	AB411 (April – Oct.)	Dry Year-round	Wet Year-round
Malaga Cove, Palos Verdes Estates – weekly	A+	A+	A
Palos Verdes (Bluff) Cove, Palos Verdes Estates	A	A	A+
Long Point, Rancho Palos Verdes	A+	A+	A
Abalone Cove Shoreline Park	A	A	A
Portuguese Bend Cove, Rancho Palos Verdes	A+	A+	A
Royal Palms State Beach	A	A	A
Wilder Annex, San Pedro	A+	A+	A
Cabrillo Beach, oceanside	A+	A	A
Cabrillo Beach – harborside at lifeguard tower	F	F	F
Cabrillo Beach – harborside at boat launch	A	C	C
Avalon Beach – between BB restaurant & Tuna Club	F		
Avalon Beach – between Pier & BB restaurant (2/3)	F		
Avalon Beach – between Pier & BB restaurant (1/3)	F		
Avalon Beach – between storm drain & Pier (2/3)	F		
Avalon Beach – between storm drain & Pier (1/3)	F		
Long Beach City Beach, projection of 3rd Place	A	A	F
Long Beach City Beach, projection of 5th Place	A	A	F
Long Beach City Beach, projection of 10th Place	B	C	F
Long Beach City Beach, projection of 16th Place	A	A	F
Long Beach City Beach, projection of Molino Ave.	A	A	F
Long Beach City Beach, projection of Coronado Ave.	A	A	F
Long Beach City Beach, projection of 36th Place	A	A	F
Belmont Pier – westside	B	A	F
Belmont Pier – eastside (used to be mid-pier)	A	A	F
Long Beach City Beach, projection of Prospect Ave.	A	A	F
Long Beach City Beach, projection of Granada Ave.	A	A	F
Long Beach City Beach, projection of 54th Place	A	A	F
Long Beach City Beach, projection of 55th Place	A	A	F
Long Beach City Beach, projection of 62 Place	A	A	F

County “Beach Bummers” names appear in **bold**.

Los Angeles County (continued)	AB411 (April – Oct.)	Dry Year-round	Wet Year-round
Long Beach City Beach, projection of 72nd Place	A	A	F
56th Place – on bayside	A+	A	F
1st & Bayshore	A	A	F
Alamitos Bay – shore float	A	A	F
Mother's Beach – Long Beach	A	A	F
2nd St. Bridge & Bayshore	A	B	F
Colorado Lagoon – north	D	D	F
Colorado Lagoon – center	B	C	F
Colorado Lagoon – south	A	A	F

County “Beach Bumpers” names appear in **bold**.

Orange County	AB411 (April – Oct.)	Dry Year-round	Wet Year-round
Seal Beach, projection of 1st Street	A	A	F
Seal Beach, projection of 8th Street	A+	A	C
Seal Beach Pier, 100 yards south of pier	A+	A+	D
Seal Beach, projection of 14th Street	A	A	B
Surfside Beach, projection of Sea Way	A+	A+	B
Sunset Beach, projection of Broadway	A+	A+	A
Bolsa Chica Beach across from the Reserve Flood Gates	A	A	B
Bolsa Chica Reserve at the downcoast end of the State Beach	A	A	B
Huntington City Beach, Bluffs	A	A	B
Huntington City Beach, projection of 17th Street	A	A	B
Huntington City Beach, Jack's Snack Bar	A	A	C
Huntington City Beach, projection of Beach Blvd.	A	A	C
Huntington State Beach, projection of Newland St. (SCE Plant)	A	A	C
Huntington State Beach, projection of Magnolia Street	A	A	F
Huntington State Beach, projection of Brookhurst Street	A	A	D
Santa Ana River Mouth	A	A	F
Newport Beach, projection of Orange Street	A	A	F
Newport Beach, projection of 52nd/53rd Street	A	A	C
Newport Beach, projection of 38th Street	A+	A	A
Newport Beach Pier	A+		
Balboa Beach, projection of 15th/16th Street	A	A	A
Balboa Beach Pier	A	A	A+
Balboa Beach, The Wedge	A	A	A
Huntington Harbor, Mother's Beach – Orange County	A+	A	D
Huntington Harbor, Trinidad Lane Beach	A+	A	F
Huntington Harbor, Sea Gate	A+	A+	B
Huntington Harbor, Humboldt Beach	A	A	F
Huntington Harbor, Davenport Beach	A+	A+	F
Huntington Harbor, Coral Cay Beach	A+	A	D

Orange County (continued)	AB411 (April – Oct.)	Dry Year-round	Wet Year-round
Huntington Harbor, 11th Street Beach	A+	A	F
Newport Bay, Newport Dunes – North	A	A	F
Newport Bay, Newport Dunes – East	A	B	D
Newport Bay, Newport Dunes – Middle	A+	A	D
Newport Bay, Newport Dunes – West	A	A	F
Newport Bay, Bayshore Beach	A+	A	D
Newport Bay, Via Genoa Beach	A+	A	D
Newport Bay, Lido Yacht Club Beach	B	A	F
Newport Bay, Garnet Avenue Beach	A+	A	D
Newport Bay, Sapphire Avenue Beach	A+	A+	D
Newport Bay, Abalone Avenue Beach	A+	A+	D
Newport Bay, Park Avenue Beach	A+	A+	D
Newport Bay, Onyx Avenue Beach	A	A	F
Newport Bay, Ruby Avenue Beach	A+	A	D
Newport Bay, Grand Canal	A	A	F
Newport Bay, 43rd Street Beach	A	A	F
Newport Bay, 38th Street Beach	A	A	F
Newport Bay, 19th Street Beach	A+	A	F
Newport Bay, 15th Street Beach	A	A	F
Newport Bay, 10th Street Beach	A	A	C
Newport Bay, Alvarado/Bay Isle Beach	A	A	D
Newport Bay, N Street Beach	A+	A	C
Newport Bay, Harbor Patrol Beach	A	A	F
Newport Bay, Rocky Point Beach	A+	A+	A+
Corona Del Mar (CSDOC)	A	A	A
Little Corona Beach	A+	A+	A
Pelican Point	A+	A	A+
Crystal Cove (CSDOC)	A+	A	A
Muddy Creek	A+	A+	A+

County “Beach Bummers” names appear in **bold**.

Orange County (continued)	AB411 (April – Oct.)	Dry Year-round	Wet Year-round
El Morro Beach	A+	A+	A+
Emerald Bay	A	A	A+
Crescent Bay Beach	A+	A+	A+
Laguna Main Beach	A+	A+	B
Laguna Hotel	A+	A	C
Projection of Bluebird Canyon	A	A	C
Victoria Beach	A	A	A
Blue Lagoon	A	A	A
Treasure Island Pier (AWMA)	A+	A+	A
Treasure Island Sign	A+	A+	A
Aliso Creek – north	A+	A	A
Aliso Creek – middle	A	A	F
Aliso Creek Beach, projection of Aliso Beach entrance	A	A	D
Aliso Creek – south	A+	A	B
Camel Point	A	A	A
Table Rock	A+	A+	A
Laguna Lido Apt.	A	A	A
9th St. 1000 Steps Beach	A+	A	A
Three Arch Bay	A	A	A+
Monarch Beach (North)	D	C	C
Salt Creek Beach	A	A	B
Dana Strand Beach (AWMA)	A	A	A
Marine Institute Beach (SERRA)	A+	A+	A
North Beach – Doheny	D	F	B
Doheny Beach (No. of San Juan Creek)	C	F	F
San Juan Cr/Ocean Interface	D	F	F
Doheny Beach (So. of San Juan Creek)	B	F	F
1000' south of SERRA Outfall	D	F	F
2000' south of SERRA Outfall	C	F	F

County “Beach Bummers” names appear in **bold**.

Orange County (continued)	AB411 (April – Oct.)	Dry Year-round	Wet Year-round
3000' south of SERRA Outfall	B	D	C
4000' south of SERRA Outfall	A	C	F
5000' south of SERRA Outfall	A	B	B
7500' South Outfall – Projection of Camino Estrella	A	B	B
10000' south of SERRA Outfall, #5505 Beach Road	A	A	A
14000' south of SERRA Outfall, Poche Beach	C	B	F
20000' South Outfall – San Clemente, proj. of Avenida Pico	A	A	D
San Clemente, Lifeguard Building, north of San Clemente Pier	A+	A	C
San Clemente, Trafalgar Street Beach	A	A	B
San Clemente, Avenida Calafia	A+	A	B
San Clemente, Las Palmeras	A+	A+	A
Dana Point Harbor, West End – Baby Beach	F	C	C
Dana Point Harbor, Buoy Line – Baby Beach	A	B	F
Dana Point Harbor, Swim Area – Baby Beach	A	B	F
Dana Point Harbor, East End – Baby Beach	A	A	F
Dana Point Harbor, Guest Dock – End (West Basin)	A+	A+	B
Dana Point Harbor, Youth Dock	A	A	B

County “Beach Bummers” names appear in **bold**.

San Diego County	AB411 (April – Oct.)	Dry Year-round	Wet Year-round
San Onofre State Beach, San Mateo Creek outlet	F		
San Onofre State Beach, San Onofre Creek outlet	A+		
Camp Pendleton, Camp del Mar (near 9th St.)	A+		
Oceanside, Harbor Beach (projection Harbor Dr.)	A+	A+	A+
Oceanside, San Luis Rey River outlet	B	C	F
Oceanside, projection of Surfrider Way	A+	A+	C
Oceanside, projection of Pier View Way	A+	A+	A+
Oceanside, projection of Tyson Street	A+	A	A
Oceanside, projection of Wisconsin Street	A		
Oceanside, projection of Forester Street	A+	A+	A
Oceanside, 500' N. of Loma Alta Creek outlet	A+	A+	A
Oceanside, Buccaneer Beach (at Loma Alta Crk.)	A	B	F
Oceanside, projection of Cassidy Street	A+	A+	C
Oceanside, St. Malo Beach (downcoast from St. Malo Road)	A+	A+	B
Oceanside, Buena Vista Lagoon outlet	A		
Carlsbad, projection of Carlsbad Village Drive	A+		
Carlsbad, projection of Tamarack Av.	A	A	A+
Carlsbad, warm water jetty	A		
Carlsbad, projection of Cerezo Drive	A+	A+	A
Carlsbad, projection of Palomar Airport Rd.	A+	A+	A+
Carlsbad, Encina Creek outlet	A+	A+	A+
Carlsbad, projection of Ponto Drive	A+	A+	A
Carlsbad, projection of Poinsettia Lane	A+	A+	A+
Carlsbad, Batiquitos Lagoon outlet	A		
Encinitas, Moonlight Beach (Cottonwood Creek outlet)	A	A	B
Encinitas, Swami's Beach (Seacliff Park)	A		
Encinitas, San Elijo State Park (proj. Liverpool Dr.)	A+	A	A
Encinitas, San Elijo State Park (proj. Beethoven Ave. – Pipes)		A	A+
Cardiff State Beach, San Elijo Lagoon outlet	A	A	A

County "Beach Bummers" names appear in **bold**.

San Diego County (continued)	AB411 (April – Oct.)	Dry Year-round	Wet Year-round
Cardiff State Beach Charthouse parking (slight S. of Kilkeny)	A+	A+	A+
Cardiff State Beach, Las Olas (100 yds. south of Charthouse)	A	A	A+
Cardiff State Beach, Seaside State Park	A+	A+	A+
Solana Beach, Tide Beach Park (proj. Solana Vista Dr.)	A+	A+	A+
Solana Beach, Fletcher Cove (proj. Lomas Santa Fe Dr.)	A	A	C
Solana Beach, Seascapes Surf Beach Park	A		
Del Mar, San Dieguito River Beach	A	A	D
Del Mar, projection of 15th Street	A	A	A+
Torrey Pines, Los Penasquitos Lagoon outlet	A	A	A
La Jolla (north), Scripps Pier	A+		
La Jolla Shores, projection of Ave De La Playa	A	A	A
La Jolla, La Jolla Cove	A		
La Jolla, South Casa Beach	A		
Coast Blvd. (the Gazebo)	A+		
La Jolla, Ravina (south of Nicholson Pt.)	A		
Windansea Beach, projection of Playa Del Norte	A+	A+	A+
Pacific Beach, P.B. Point (downcoast of Linda Way)	C	C	B
Pacific Beach, Tourmaline Surf Park (proj. of Tourmaline St.)	A+	A+	B
Pacific Beach, Crystal Pier (projection of Garnet)	A+		
Pacific Beach, projection of Grand Ave.	A	A	A+
Mission Beach, Belmont Park	A+	A+	A+
Mission Bay, Mariners Basin (proj. of Balboa Ct.)	A		
Mission Bay, Bonita Cove (east cove)	A		
Mission Bay, Bahia Point – northside (apex of Gleason Rd.)	A		
Mission Bay, Ventura Cove	A		
Mission Bay, Sail Bay (proj. of Whitting Ct.)	A		
Mission Bay, Fanuel Park (proj. of Fanuel St.)	A		
Mission Bay, Crown Point Shores	A		
Mission Bay, Wildlife Refuge near fence (proj. of Lamont St.)	A+		

County "Beach Bummers" names appear in **bold**.

San Diego County (continued)	AB411 (April – Oct.)	Dry Year-round	Wet Year-round
Mission Bay, Campland (west of Rose Creek)	D	F	F
Mission Bay, DeAnza Cove (mid-cove)	A		
Mission Bay, Visitor's Center (proj. of Clairemont Dr.)	B		
Mission Bay, Comfort Station north of Leisure Lagoon	B		
Mission Bay, Leisure Lagoon	F		
Mission Bay, Tecolote Shores drain	B		
Mission Bay, Tecolote Playground (watercraft area)	C		
Mission Bay, Fiesta Island Bridge (south side)	A+		
Mission Bay, Vacation Isle Ski Beach	A		
Ocean Beach, San Diego River outlet (Dog Beach)	A	A	A+
Ocean Beach, Stub Jetty	A	A	A+
Ocean Beach Pier, northside at Newport Ave.	A+	A+	A
Ocean Beach, Ocean Pier (proj. of Narragansett Ave.)	A	A	A
Ocean Beach, projection of Bermuda Ave.	A	A	A
Sunset Cliffs, projection of Ladera Street	A	A	A
Point Loma, Point Loma Treatment Plant	A	A	A
Point Loma, Lighthouse	A+	A+	A+
San Diego Bay, Shelter Island (Shoreline Beach Park)	A		
San Diego Bay, Spanish Landing Park beach	A		
San Diego Bay, Bayside Park (projection of J Street)	C		
San Diego Bay, Silver Strand	A+		
San Diego Bay, Glorietta Bay Park at boat launch	B		
San Diego Bay, Tidelands Park (proj. of Mullinix Dr.)	A		
Coronado at North Beach (near navy fence at Ocean Blvd.)	A	A	A+
Coronado at North Beach (NASNI Beach)	A	A	A+
Coronado, projection of Loma Ave.	A	A	A+
Coronado, projection of Ave. del Sol	A	A	A
Coronado, Silver Strand	A	A	C
Imperial Beach, Camp Surf Jetty	B		

County "Beach Bummers" names appear in **bold**.

San Diego County (continued)	AB411 (April – Oct.)	Dry Year-round	Wet Year-round
Imperial Beach, projection of Carnation Ave.	A	A	D
Imperial Beach, Imperial Beach Pier (northside)	B	A	F
Imperial Beach, southend of Seacoast Dr.	B	B	F
Tijuana Slough NWRS, ¾ mi. North of TJ River	F	D	F
Tijuana Slough NWRS, Tijuana Rivermouth	F	F	F
Border Field State Park, proj. of Monument Rd.	D	D	F
Border Field State Park, Border Fence (northside)	B	B	F

County “Beach Bummers” names appear in **bold**.

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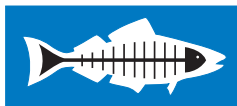
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